





# The Home Entertainment

SourceBook



## Section 4

### A/V Receivers

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## Introduction to A/V Receivers



*The heart of any home theater system, and the component you'll interact with most. A/V receivers handle a multitude of essential tasks that can make or break the quality of your home entertainment experience. It has a preamp allowing you to route audio and video from different sources DVD, cable TV, CD, turntable, etc. to your speakers and television. The receiver also does doubles as an AM/FM tuner, amplifier for you speakers, and typically controls everything from surround-sound decoding (such as Dolby Pro Logic, Dolby Digital, or DTS) to*

*tone controls (bass and treble) and master volume. An A/V receiver is similar to the conventional "stereo" receiver you've had for years, with several important differences. Although both select sources, control the system's playback volume, and amplify signals to drive your loudspeakers, the A/V receiver is unique in three respects: It includes some form of surround-sound decoding, it processes 5.1 or 7.1 channels (rather than the stereo receiver's two channels) and it has video inputs and outputs.*

### Surround Sound

At the heart of the receiver is the surround-sound processor. The most basic surround processors use a **Dolby Pro Logic II** decoder. Pro Logic II is a "matrix" system that takes an encoded two-channel stereo signal and converts it to a five-channel full bandwidth (range) playback (Left/Center/Right/Left Surround/Right Surround), resulting in a surround experience. Most TV shows are encoded in Dolby Pro Logic II, as are the majority of VHS videos. You can also play DVDs through a Pro Logic II only-receiver because DVD players can synthesize a Pro Logic II signal that mimics a surround soundtrack. The newer **Dolby Pro Logic IIx** adds the ability of converting stereo or 5.1-channel surround sound for seamless 6.1 or 7.1 playback.

The reality though, is that every A/V receiver now has state-of-the-art, movie-theater-quality 5.1-channel **Dolby Digital** decoding. With five channels of discrete, full-frequency sound plus a low frequency effects (subwoofer) channel (the ".1"), Dolby Digital is the surround-sound standard that has revolutionized home-theater sound. A "Dolby Digital-ready" receiver accepts a decoded Dolby Digital signal, from a DVD player equipped with a built-in decoder, via analog inputs. Or, you can get a receiver with full Dolby-Digital-decoding built-in. **Dolby Digital EX** adds a center rear channel which helps clarify audio effects that pan from front to back.

In addition to Dolby Digital, many AV receivers now also include DTS (Digital Theater Sound) decoding, which is another 5.1 or 6.1 channel system. DTS uses a lower digital-compression rate than Dolby Digital and it tends to sound better. However, less compression does mean more than more disc space — in this case more three times. **DTS Neo:6** provides up to six channels of matrix decoding from stereo matrix material. **DTS Digital Surround** is the DTS standard for providing 5.1 channels of discrete digital audio. **DTS 96/24** is a 5.1-channel surround format that offers a higher standard of audio quality by encoding with 96kHz sampling rate and 24-bit word length.

Top of the line A/V receivers include THX Surround EX and DTS ES. These formats add a third surround channel that drives loudspeakers located directly behind the listener. Receivers with EX and ES decoding usually include seven amplifier channels rather than five. And they have the same goal: to allow film sound-mixers to position sounds and pans (movements of sounds) more precisely behind you.

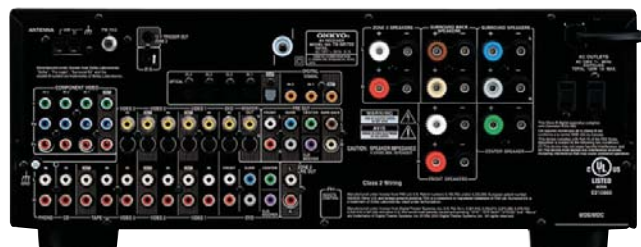
### DSP Processing

All modern A/V receivers use Digital Signal Processing (DSP) chips to perform Dolby Digital and DTS decoding. The same DSP chips also create the "soundfield" modes that process two-channel sources for surround-sound playback over multiple loudspeakers. These soundfield modes attempt to replicate the acoustics of various venues, from jazz clubs to stadiums, by adding simulated acoustic reflections to the signal and delaying the signals sent to the surround loudspeakers. (Sometimes these emulations amount to little more than novelty effects, but depending on your program material, they can enhance your listening experience).

DSP chips also perform another important function in the receiver: bass management. Bass management filters bass frequencies from small loudspeakers and directs them to the subwoofer. While Dolby Digital, DTS, and DSP surround processing all occur in the digital domain, the final sound output must come from your analog speakers. Receivers use a multi-channel digital-to-analog converter (DAC) to create the final analog signal passed on to your speakers. These DACs can vary greatly in sound quality so be careful.

### Inputs

You should make sure your AV receiver has sufficient audio and video inputs and outputs to meet your current and future needs. Today a DVD player may be your only digital source, but tomorrow you may wish to add a DBS satellite dish and a CD recorder that requires their own digital inputs for optimum performance.





## Introduction to A/V Receivers

### Inputs (continued)

To get the most from DVD, make sure your TV has an S-Video, or even better, a component video input. Most receivers include S-Video switching and multiple S-Video inputs and outputs so you can conveniently switch between other S-Video sources like DBS satellite and a Hi8 or Digital8 camcorder. With its improved color purity, superior color detail, and reduced NTSC artifacts, Component video is superior to both composite and S-video. While it's ideal to have a receiver with S-Video or component video switching, there are some very good but affordable receivers that don't have S-Video or component capability. If you plan to get an HDTV TV or projector with component-video inputs, look for a receiver offering component-video switching. Last, if you frequently use your camcorder with your home theater setup, be sure your receiver includes a set of convenient front-panel AV jacks.

### Outputs

You'll want to make sure your receiver has enough outputs for all your speakers, monitors, and other devices. If you own a CD or DVD recorder, you'll probably want a receiver with a digital output jack, either coaxial or optical, depending upon your recorder's input. If you're going to be using a powered subwoofer in your home theater setup, you'll also want a subwoofer out. You might want to consider buying a receiver with "pre-out" line-level RCA jacks for each of its main channels, especially if your budget restricts you to a relatively low-powered model. That way you can easily add a more powerful outboard amplifier later, relegating your AV receiver to preamplifier status. If you're highly concerned about future upgradeability, you might want to consider a receiver that has six- or even eight-channel throughputs. This will allow your receiver to pass the signal from a future surround-sound format.

Because most home-theater speaker systems consist of five limited-frequency-range satellites and a subwoofer, you should buy a receiver with a flexible bass management system that permits you to direct low frequencies (anywhere from 180 Hz on down) from the five main channels to the subwoofer. This enables both the receiver and your speakers to perform more efficiently.

### Amplifier Power

How much amplifier power do you really need for your home theater setup? For the best performance, a minimum of 100 watts per channel (20-20,000 Hz, all channels driven) is recommended. Power is the most misunderstood specification in home theater. For example, a manufacturer might give their receiver a two-channel-driven rating of 100 watts at 20-20,000 Hz. Their five-channel playback (all channels driven) rating might look similar but mean something very different: 100 watts at 1000 Hz, for example. Because it's only given for one frequency, not the entire range, the second spec probably means there is a significant power drop off at the frequency extremes when all five channels are in use. The bottom line is when looking at power ratings, try to get a rating that covers the full audio spectrum, not just one frequency.

Another factor influences how powerful a receiver you need: whether or not you have a subwoofer with a built-in power amplifier. With a subwoofer in the system, low bass frequencies are filtered from the signals driving the main loudspeakers, which reduces the amount of amplifier power needed to drive them. Low bass requires more amplifier power to reproduce than do midrange and treble frequencies. By directing the bass to the subwoofer and away from the main speakers, the receiver's power amplifiers don't have to work as hard. Adding a powered subwoofer reduces the receiver's power-output requirements by about 20 percent.

Plus, power output isn't always an indicator of how loudly your home-theater system will play. In fact, the speakers connected to the receiver have as much influence on the system's volume capability as does amplifier power. Specifically, loudspeakers vary in their sensitivity, a measure of how much sound they produce for a given amount of input power. What does sensitivity difference mean in the real world? A great deal. Every 3-dB decrease in loudspeaker sensitivity requires a doubling of amplifier power to achieve the same loudness. That means that speaker A (83-dB sensitivity) would need 16 times the amplifier power to produce a given sound-pressure level compared to speaker B (95-dB sensitivity). Yes—160 watts driving speaker A produces the same volume as 10 watts driving speaker B! That's why you should match the receiver's output power to your speakers' sensitivity.

## THX CERTIFICATION

**S**ome receivers are billed as "THX Certified" (Ultra, Ultra II or Select) which means they incorporate four Lucasfilm-developed technologies that better translates the soundtrack intended for theater reproduction into the home. THX-certified receivers also meet a set of technical criteria established by Lucas Film. These are:

- ◆ A re-equalization circuit to reduce excessive brightness
- ◆ Surround de-correlation to increase the sense of envelopment by making the left and right surround channels slightly different from each other
- ◆ Timbre matching to assure that sounds from the front and surround channels have the same timbre
- ◆ A subwoofer crossover

Choosing a THX-certified A-V receiver has many advantages. First, THX's signal processing (surround decorrelation, timbre matching, re-equalization, subwoofer crossover) is of unquestionable benefit in reproducing film soundtracks in the home. Second, you know that the receiver has achieved a certain level of technical performance. Third, a receiver with THX certification will likely have all the output power you'll ever need. Finally, using a THX-certified receiver with THX-certified loudspeakers and subwoofer takes the guesswork out of matching the receiver to the loudspeakers.

However, that there are many excellent receivers that don't bear the THX logo—simply because their manufacturers decided not to participate in the THX licensing program—or pay Lucasfilm royalties.

## AVR-145, AVR-245, AVR-345, AVR-445, AVR-645

### Audio/Video Receivers

*Setting new standards in performance and versatility, Harman Kardon's high-performance A/V receivers —the AVR 145, AVR 245, AVR 345, AVR 445 and AVR 645 combine the industry's most innovative technologies and features with classic Harman Kardon high-current amplification and striking industrial design. They redefine A/V receiver performance and flexibility in their respective categories, and offer exceptional operational versatility for custom installations, multi-room applications and sophisticated home entertainment systems.*

*The 5.1-channel **AVR 145** (5 x 40 watts, 2 x 50 watts in stereo), 7.1-channel **AVR 245** (7 x 50 watts, 2 x 65 watts in stereo), and 7.1-channel **AVR 345** (7 x 55 watts, 2 x 70 in stereo) provide outstanding performance and value, with best-in-class features such as exclusive Logic 7 and VMaX surround sound processing and multi-channel direct inputs for DVD-Audio and SACD. The 7.1-channel **AVR 445** (7 x 65 watts, 2 x 80 watts in stereo) and **AVR 645** (7 x 75 watts, 2 x 90 watts in stereo) incorporate leading-edge features such as a USB connector allowing you to stream music directly from your PC as well as*

*bi-directional RS-232 connectivity enabling two-way communication between components in custom installations with integrated system control. All receivers offer extensive installation flexibility and connectivity, including front-panel A/V and digital inputs. The 5.1 channel AVR 145 offers a Triple Crossover bass-management system, while the AVR 245, AVR 345, AVR 445 and AVR 645 offer a Quadruple Crossover Bass Manager, which allows the selection of one of six different crossover frequencies for each of the four loudspeaker groups in a 7.1-channel system.*

*The AVR 645, AVR 445 and AVR 345 offer multi-room/multi-source operation with independent, simultaneous operation of two program sources, assignable 7.1- or 5.1-plus-stereo amplifier configuration, and a supplied Zone II remote for controlling the second-zone system.*



AVR-645 with Open Front Door



AVR-645 Rear Panel View

## HARMON KARDON TECHNOLOGY

*To deliver the right combination of power, performance, flexibility and ease of use, Harman Kardon has always sought to strike a balance between the development of key enhancements to the underpinnings of audio and video technology, and the importance of making them accessible to both the advanced audiophile and the home theater novice.*

### Logic 7— a better approach to sound

Originally developed for high-end processors, Harman's Logic 7 processing creates a more cohesive and enveloping sound field from the tens of thousands of analog matrix soundtracks currently available. Logic 7 is not only capable of resolving either five or seven channels from a two-channel source; it increases the accuracy with which sounds are directed to the center and surround channels, for more precise reproduction of the original soundtrack.

### The Bridge iPod Docking Station

Harman Kardon's The Bridge is a docking station that allows you to integrate your AVR receiver with your iPod. The Bridge allows you to share the favorite tracks and playlists stored on your iPod with anyone in listening range of a compatible Harman Kardon AVR. The Bridge enables you to operate your iPod using your AVR's remote control while on-screen and front-panel menus guide your track selections. The Bridge™ also charges the iPod while you use it.

## AVR-145 5x 40-watt 5.1-Channel A/V Receiver

Harman Kardon's most affordable A/V receiver is versatile and multi-featured, incorporating a wide range of listening options and five 40 Watt equal power channels. It has a high-current, ultra-wide bandwidth amplifier that can handle the most demanding speaker loads. A wide range of processing options, including Dolby Digital, DTS, Dolby Pro Logic IIx/II and, of course, Harman's Logic 7 technology, give you theater-quality sound at a budget-minded price. Compatibility with Harman Kardon's The Bridge iPod dock allows you to connect and control your iPod with the AVR 145's front panel and/or remote. The AVR 145 also provides a generous complement of audio and video connections including 5.1 channel direct inputs and front-panel A/V inputs, six digital inputs, two digital outputs, 192kHz/24-bit digital-to-analog converters and is supplied with a programmable remote control to round out the package.



### FEATURES

#### Amplifier Section

- ◆ Five channels each with 40 watt of power output (into 8 ohms, 20Hz –20kHz, <0.07% THD, (50 watt/channel stereo)
- ◆ Traditional Harman Kardon high-current ( $\pm 25$  Amps), ultrawide bandwidth design technologies, delivers dynamic, expansive sound quality
- ◆ A Triple-crossover bass management system allows you to select one of six different crossover frequencies for the front, center and surround speaker groups.

#### Processing

- ◆ In addition to Dolby Digital and DTS decoders, a broad choice of analog surround modes are available for use with a variety of stereo sources
- ◆ Along with Dolby Pro Logic IIx/II decoding, Dolby 3 Stereo and custom Hall and Theater modes, Harman's Logic 7 creates a wider, more enveloping field environment and more defined fly-overs and pans.
- ◆ Dolby Headphone mode delivers a spacious, open sound when using headphones.

#### Inputs and Outputs

- ◆ Four A/V inputs with composite and S-Video video ins and analog audio inputs; plus four additional analog inputs.
- ◆ Three optical and three coaxial digital inputs ensure the best possible audio quality from the latest cable or satellite receivers, DVD players and SACD players.
- ◆ Digital Input Polling detects whether the audio source (such as a cable set-top box) is digital or analog and automatically configures the receiver for the proper output.
- ◆ One coaxial and one optical digital audio output are available for direct connection to digital recorders.
- ◆ 5.1 channel direct audio inputs are provided
- ◆ A subwoofer preamp out, available in the surround and Stereo-Digital modes, can be tailored to suit your room acoustics or taste.
- ◆ Color-coded binding post speaker terminals
- ◆ Two sets of wide bandwidth (100MHz) component video inputs and one set of outputs

#### Conveniences

- ◆ A/V Sync Delay function compensates for the delay that can occur with audio signals when digital video sources, external processors or digital video displays are in use.
- ◆ EzSet remote control measures a system's sound levels and calibrates them for perfectly balanced sound field presentation.
- ◆ A Stereo-Direct mode bypasses all digital processing for true stereo analog playback
- ◆ FM/AM tuner with 30 station presets
- ◆ A Listener Preference System lets you set the surround mode according to the program source; it also enables setting speaker levels for each program source and DSP format
- ◆ On-screen menu and display system make it simple to enter settings for speaker configurations and bass management
- ◆ RS-232 connectivity provides software and firmware upgradeability.
- ◆ Includes an eight-device, programmable remote control



## AVR-245 7x 50-watt 7.1-Channel A/V Receiver

The AVR 245 is the perfect receiver for those who want to step up to the enhanced sonic realism provided by state-of-the-art 7.1-channel surround sound. The AVR 245 is compatible with all popular surround-decoding formats, including Dolby Pro Logic IIx, Dolby Virtual Speaker, Dolby Headphone and DTS formats, and also includes exclusive Harman Kardon's Logic 7 processing. The AVR 245 is also XM-radio ready and includes a wealth of advanced features and technologies such as an EzSet+ remote that provides automatic-speaker-level calibration, a Quad-Crossover Bass Manager, A/V Sync Delay, digital input polling and an on-screen menu display via the receiver's component video outputs. It provides a complete selection of audio and video connections, including two HDMI inputs, three wide-bandwidth HDTV-compatible component video inputs and multiple digital and analog audio inputs.



### Same features as the AVR-145, Plus—

- ◆ 7 x 50 watts power output (into 8 ohms, 20Hz – 20kHz, <0.07% THD, 2 x 65 in stereo; ±35 amps of high-current capability)
- ◆ Quad-crossover bass-management system allows selection from among six different crossover frequencies for the front L/R, center, surround L/R and surround back L/R speakers.
- ◆ Dolby Virtual Speaker processing compensates for systems with less than a 5.1 speaker complement.
- ◆ Auto assignment multizone capabilities for audio distribution
- ◆ 7.1-channel preamp outputs and 7.1 channels of direct audio inputs
- ◆ Two switching HDMI inputs and one HDMI output deliver digital audio and video over a single wire from a component to the receiver and from the receiver to the TV.
- ◆ Five composite and S-Video inputs, three (100MHz) HDTV compatible component video inputs
- ◆ IR trigger output allows you to control the power state of compatible external components such as a power amplifier or CD player.

## AVR-345 7x 55-watt 7.1-Channel A/V Receiver



volume and program source of the receiver. An XM-ready port provides the option of accessing satellite radio from within the receiver.

The AVR 345 offers an expanded range of digital and analog audio and video connections and operational features, making it ideal for high-performance home theater systems and multi-room custom installations. Upgrades include A-BUS capability which uses a Category 5 cable connected to an optional remote module. This lets you power a remote pair of speakers with the ability to control the



### Same features as the AVR-245 Plus—

- ◆ 7 x 55 watts of power output, two x 70 watts stereo
- ◆ DCDi by Faroudja video processing with output scaling to 720p
- ◆ Four optical and four coaxial digital inputs
- ◆ Automated system calibration and room EQ functions vastly simplify installation while providing improved performance.

#### EZSet/EQ

#### Conveniences

- ◆ Detachable IEC power cord
- ◆ Graphical user interface for quick and easy set up.

## HARMAN KARDON

## AVR-445 / AVR-645 7.1-Channel A/V Receivers

The AVR-445 and AVR-645 are 7.1 channel A/V receivers that raise the technology bar even higher with the implementation of a USB port that allows you to stream music from your Windows 2000 / XP compatible computer. The AVR-445 offers 65 Watts to each of its seven channels, while the AVR-645 offers 75 Watts. Both the AVR-445 and AVR-645 offer video transcoding that allows you to output any S-Video or composite video input source to the component output. Both units also include a nine device remote control unit with learning capability.

**Same features as the AVR-345 Plus—**

- ◆ High-current, ultrawide-bandwidth amplifier section with seven x 65 watts of power output (into 8 ohms, 20Hz – 20kHz, <0.07% THD; two x 80 watts in stereo; and ±40 amps of high-current capability)
- ◆ USB connectivity allows music playback from Windows 2000 / XP computers
- ◆ TI DA610 32-bit DSP processor delivers superlative sound quality
- ◆ Bi-directional RS-232 connectivity provides 3rd party control capabilities as well as software and firmware upgradeability.
- ◆ Video cross-conversion converts all S-Video and composite video sources to component video output, using leading-edge video-processing circuitry that maintains maximum picture quality with no conversion artifacts or image degradation. This enables the receiver to be connected to a compatible TV set or display device using just a single set of component video cables.

**The AVR-645 Adds**

- ◆ High-current, ultrawide-bandwidth amplifier section with seven x 75 watts of power output (into 8 ohms, 20Hz – 20kHz, <0.07% THD; two x 90 watts in stereo; and ±50 amps of high-current capability)
- ◆ Front panel coaxial and optical digital inputs
- ◆ HDMI V 1.1 inputs are DVD audio compatible

## HARMON KARDON TECHNOLOGY

**Switchable Front-Panel Jacks**

Front-panel input jacks are common on many A/V products, but that doesn't help when you want to send a source out of the receiver, for dubbing to a portable device. Harman receivers make things easy by allowing you to switch the video, analog audio and digital audio jacks on the front panel of select AVRs from an input to an output. With one quick change of a menu setting, any digital or analog source is routed to the front panel so that you can make your dub for the day and be on your way.

**The multi-room Solution**

Every A-BUS Ready Harman Kardon receiver includes a multi-room switching system, assignable rear amplifier channels and a Zone II standard remote. A simple cable connection to an AB 1 module is all that's needed to send audio and power commands to any room of your house. The easily installed AB 1 module powers your remote in-wall speakers without further amplification or AC connections, and it does more than adjust volume. It includes a built-in remote sensor to control your entire system.

**High-Current Capability—  
more muscle for maximum punch**

Watts per channel is an incomplete measure of amplifier power. In terms of dynamic range and impact, it's current that counts. HCC is an overall design approach encompassing everything from transformer design and capacitor size to discrete output circuitry and minimal use of negative feedback. This electronic equivalent of a high-torque, high-displacement racing engine results in audible benefits. You enjoy tighter bass, superb transient response and enhanced presence at any volume level.

**EzSet Quick Surround Setup—  
your own personal audio technician**

EzSet speaker calibration lets you automatically balance individual speaker channel levels for optimum surround sound enjoyment – regardless of the speaker type or room conditions. Push a few buttons and, in less than three minutes, your Harman Kardon home cinema system is calibrated. Bottom line – the adjustment most critical to multichannel movie soundtrack reproduction is virtually foolproof.



## AVR-745 7x 85-watt 7.2-Channel A/V Receiver

The top-of-the-line AVR-745 has all the features of the AVR-645 plus it offers dual-input HDMI 1.1 switching enhanced with DCDi by Faroudja image processing which upconverts all inputs to high-resolution video, ensuring that the AVR-745, video quality will match the unparalleled power and performance of Harman Kardon audio. The AVR 745 also features dual (stereo) subwoofer outputs that provide even greater sub bass imaging accuracy. Other feature enhancements of the AVR-745 include 200 mS A/V sync delay, and an activity-based, color LCD remote control.



### Same features as the AVR-645 Plus—

- ◆ 7 x 85 Watts of power output (into 8 ohms, 20Hz – 20kHz, <0.07 per cent THD, all channels driven; 2 x 100 Watts in stereo; and ±60 amps of high-current capability).
- ◆ Dual-input HDMI 1.1 switching, along with a DCDi by Faroudja FL2310 processor and scaler provides upconverted and enhanced HD 780p and 1080i video from 480i and 480p video sources.
- ◆ EzSet/EQ II feature set provides automated system calibration and full-range room EQ including stereo subwoofer adjustment capability.
- ◆ Supplied with the TC 30 activity-based remote control, an all-in-one remote that provides complete control of every component in a home entertainment system.

	AVR-745	AVR-645	AVR-445	AVR-345	AVR-245	AVR-145
Number Of Channels	7.2-Channel	7.1-Channel	7.1-Channel	7.1-Channel	7.1-Channel	5.1-Channel
Power (Stereo/Multichannel)	100 x 2 / 85 x 7	90 x 2 / 75 x 7	80 x 2 / 65 x 7	70 x / 55 x 7	65 x 2 / 50 x 7	50 x 2 / 40 x 5
Amplifier Type	High Current ±60 amps	High Current ±50 amps	High Current ±40 amps	High Current ±35 amps	High Current ±35 amps	High Current ±25 amps
XM-Ready	Yes	Yes	Yes	Yes	No	No
Dolby Virtual Speaker	Yes	Yes	Yes	Yes	Yes	No
HD/CD Processing	Yes	Yes	No	No	No	No
Multizone (with remote)	Audio/Video	Audio	Audio	Audio	Audio (no remote)	No
Assignable Rear Amplifiers	Yes	Yes	Yes	Yes	Auto Assign	N/A
EzSet Capability	EzSet/EQ II	EzSet/EQ	EzSet/EQ	EzSet/EQ	EzSet+	EzSet+
A/V Inputs	5	5	5	5	5	4
S-Video Inputs	5	5	5	5	5	4
Analog Audio Inputs	4	4	4	4	4	4
Digital Ins (Coax/Optical/USB)	Rear 3/3/1, Front 1/1/0	Rear 3/3/1, Front 1/1	Rear 3/3/1, Front 1/1	Rear 3/3/0, Front 1/1	Rear 2/2/0, Front 1/1	Rear 2/2/0, Front 1/1
Digital Outs (Coax/Optical)	Rear 1/1, Front 1/1	Rear 1/1, Front 1/1	Rear 1/1	Rear 1/1	Rear 1/1	Rear 1/1
Direct Audio Inputs	7.1 w/ Bass Mgmt	7.1	7.1	7.1	7.1	5.1
Preamp Outputs	7.2 Channels	7.1 Channels	7.1 Channels	7.1 Channels	7.1 Channels	5.1
Bass Management	Quad crossover	Quad crossover	Quad crossover	Quad crossover	Quad crossover	Triple crossover
DSP Processor	TI DA 610	TI DA 610	TI DA 610	Cirrus 49510	Cirrus 49510	Cirrus 49510
Video Processing / Conversion	DCDi by Faroudja scaling to 720p or 1080i	Comp/S to Component Transcoding	Comp/S to Component Transcoding	DCDi by Faroudja scaling to 720p	Comp/S to Component Transcoding	No
Component Video Inputs	3 @ 100MHz	2 @ 60MHz	2 @ 60MHz	3 @ 100 MHz	3 @ 100 MHz	2 @ 100 MHz
HDMI Inputs / Outputs	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1	0
A/V Sync Delay	200 mS	80 mS	80 mS	80 mS	80 mS	80 mS
A-BUS Ready	Yes	Yes	Yes	Yes	No	No
Programmable Remote	Activity-based color LCD	9-Device learning	9-Device learning	11-Device	11-Device	8-Device
IR In/Out Jacks	Yes	Yes	Yes	Yes	Yes	No
External Data Ports	USB and RS-232	USB and RS-232	USB and RS-232	RS-232	RS-232	RS-232
Binding Post Spkr Terminals	All-metal	Color-coded	Color-coded	Color-coded	Color-coded	Color-coded
Dimensions (HxWxD)	6½ x 17½ x 17½"	6½ x 17½ x 17½"	6½ x 17½ x 17½"	6½ x 17½ x 15"	6½ x 17½ x 15"	6½ x 17½ x 15"
Weight	52 lb	41 lb	39 lb	34 lb	30 lb	24.4 lb

## AVR-793

## 7.1 Channel Home Theater Receiver

The AVR-793 is a 7.1 channel A/V receiver, with a sleek, brushed aluminum front panel and minimalist user interface with only a few buttons required to navigate the impressive interactive display. Each of the AVR-793's seven channels deliver 135 watts of power into 6 ohms. But this impressive raw power is only part of the story: by also employing a massive toroidal transformer and high grade capacitors, the AVR-793 can react to the most demanding transient peaks, allowing the sound from your speakers to remain tight and focused. A full complement of A/V inputs is provided with your choice of high-bandwidth component, composite and S-Video inputs and outputs as well as analog RCA, coaxial and optical digital I/O.



## FEATURES

- ◆ A minimum number of buttons are employed on the front panel.
- ◆ Solid 4mm brushed aluminum front panel not only delivers an elegant appearance and feel, but also ensures durability.
- ◆ Seven output channels each delivering 135 watts into 6 ohms.
- ◆ Over specified toroidal transformers and high-grade capacitors ensure that there is always enough current available to reproduce the most demanding transient peaks.
- ◆ High quality banana-plug compatible binding posts
- ◆ 192kHz/24-bit DACs
- ◆ Comprehensive processing capability include Dolby Digital, Dolby Digital EX, Dolby Pro Logic IIX, DTS-ES (Discrete/Matrix 6.1) and DTS Neo:6.
- ◆ Five processing modes as well as Re-EQ Cinema Filter.
- ◆ Six-step LF (low frequency) crossover as well as individual bass management for front, surround and centre channels.
- ◆ One front panel and three rear A/V inputs with S-Video, composite video and stereo analog RCA connectivity. The DVD player A/V input offers surround, sub and center RCA inputs on top of the stereo ins.
- ◆ One rear panel A/V monitor output, plus a VCR record output, each with S-Video, composite video and analog RCA connectivity
- ◆ Two high-bandwidth component video inputs and one one output
- ◆ One optical and one coaxial digital input are available on the front panel and two optical and two coaxial digital inputs on the rear panel, plus a 7.1 multi channel input for SACD/DVD-Audio sources. There is also an optical and coaxial digital output on the rear.
- ◆ Measures 9 x 17.1 x 14.7" (HxWxD) and weighs 30 lbs.

DMR-60  
Digital Media Receiver

The DMR 60 is an unique 5.1 channel A/V receiver that sports not only a multi-format DVD drive, but also a 4-in-1 flash card reader and USB connection that allows you to listen to music, enjoy pictures from a digital camera or watch a DivX movie. The 5.1 channel amplifier section delivers 60 watts per channel into 4 ohms. Front L/R, Center, Surround L/R speaker outputs are available via spring clips, and a subwoofer preamp output is available for connection to an active subwoofer. The DMR 60 has two sets of analog RCA inputs as well as a coaxial and optical digital input. Two sets of S-Video and composite inputs are provided as well as a NTSC/PAL compatible, progressive scan component video output for connecting to a LCD or Plasma monitor or to a projector. And let's not forget the built-in radio tuner with 40 AM/FM presets. The DMR 60 also includes a comprehensive remote control unit.



## RX-D205S / RX-D206B / RX-D211S / RX-D212B

### 7.1 Audio/Video Control Receivers

The RX-D205S (silver) and RX-D206B (black) are stylish and feature-packed receivers that provide high performance without the high price. With 100 watts per channel for seven channels, they have the power necessary for today's demanding digital movie sound-

tracks. 7.1 inputs and a full range of audio codecs, including DTS, Dolby Digital and Dolby Pro Logic IIx make these cost effective receivers even more impressive. There are component, composite and S-Video inputs and outputs, and a multi-brand remote control. They also include a USB interface to allowing audio streaming from your PC, providing a complete and forward-thinking AV receiver for any home theater application.

The RX-D211S and RX-D212B add component video up-conversion from composite and S-Video. They are also XM ready and can control JVC's own Sirius Satellite radio tuners.



#### FEATURES

##### High Performance

- ◆ High-performance DSP delivers superior sound field processing power for many of today's home cinema sound formats, including Dolby Digital EX, Dolby Pro Logic IIx, DTS-ES, DTS 96/24, and DTS NEO:6.
- ◆ DAP (Digital Acoustics Processor) allows digital recreation of acoustic environments (halls, pavilions, etc.) for multi-channel and stereo sources. Developed jointly with one of leading concert-hall designers and contractors, DAP uses impulse responses, requiring a vast amount of data, that create sounds fields with far greater realism than conventional processing systems
- ◆ Hybrid Feedback Digital Amplifier Ver. III+ uses a digital feedback loop to generate a precise signal and an analog feedback loop to ensure that the final signal is identical to the original. The Hybrid Feedback design allows the amplifiers to be compact, highly efficient and able to generate high power output with low distortion levels.
- ◆ DSP Digital Equalizer
- ◆ DSP driven Center Channel Alignment technology compensates for placement of the center channel speaker either above or below your display, thereby shifting the apparent source of the dialog to the screen.
- ◆ AV COMPU LINK provides simple one touch operation between VC audio and video components. For example, pop a VHS tape into the VCR and it will automatically power up your receiver and your television and then turn them each to the proper inputs.
- ◆ Virtual Surround Back system allows you to enjoy the benefits of the wider sound fields available in a true 6.1-channel source, when you don't have the space for a full 6.1 set-up.
- ◆ 3D Headphone mode allows you to enjoy multi-channel audio by down-mixing the source material from the current surround mode to the two headphone channels.
- ◆ 3D-PHONIC is a JVC technology that allows you to approximate the surround sound experience without the use of surround and center channel speakers.

##### Inputs and Outputs

- ◆ Four analog inputs and two outputs
- ◆ One optical input and one assignable coaxial digital input
- ◆ Three S-Video inputs and outputs, three composite inputs and outputs, and two component inputs and one output.
- ◆ Subwoofer Pre-Out
- ◆ A USB input is provided for receiving audio signals (MP3, WMA even internet streamed audio) from your PC. That means you can digitally send audio from your computer or even an MP3 player to the receiver and from there throughout the system.

##### Conveniences

- ◆ Includes multi-brand A/V-STB (CATV/DBS) remote control
- ◆ Sleek profile to complement today's home theater systems.

##### RX-D211S / RX-D212B add—

- ◆ Video up-conversion from composite or S-Video to component
- ◆ XM Satellite radio ready input
- ◆ Sirius Satellite Radio remote control and input\*

Connect to JVC KT-SR2000 or KT-SR3000 satellite radio tuner using a dedicated control dock (optional) to control the tuner with the receiver's remote.

##### Quick Speaker Setup

The quick speaker setup feature offers true "unpack and play" convenience: just input the number of speakers you use and the size of your listening/viewing room—that's all. You can skip the elaborate steps you normally have to follow before the show starts for the first time. Anytime later you can adjust settings to your personal taste.

## RX-D301S / RX-D302B / RX-D411S / RX-D412B

### 7.1 Audio/Video Control Receivers

The JVC RX-D301S (silver) and RX-D302B (black) A/V receivers offer enhanced features and capabilities over the already sleek and thoughtfully designed RX-D211S and RX-D212B. The receivers offer 110 watts of equal power for each of their 7 channels, as well as analog 5.1 inputs for accommodating a DVD player. The RX-D301S

and RX-D302B feature a wireless USB interface for streaming audio from your PC. They also add a JVC's CC (Compression Compensative) Converter, which restores the high end details that can be lost when playing compressed (MP3s, WMAs) and non-compressed (CDs, WAVs) digital audio. It also features Video Signal Up-conversion which can up-convert input signals to be compatible with a display's input.

With the exception of wireless USB, the RX-D411S (silver) and RX-D412B (black) offer the same feature set as the RX-D301 and RX-D302, but also includes an HDMI interface with up-conversion from the other video sources. The HDMI interface handles high-definition 720p and 1080i uncompressed digital video and multi-channel audio all over one cable.



#### FEATURES

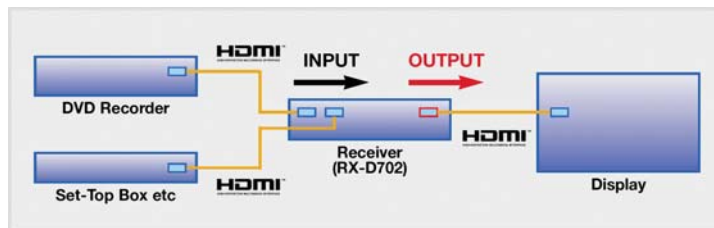
##### RX-D301/D302/D411/D412 Step-up Features

- ◆ Equal power to all seven channels: 110 watts per channel, 6 ohms at 1kHz
- ◆ Stereo: 110 watts per channel, 6 ohms, from 20Hz to 20kHz, with 0.8% THD
- ◆ Analog 5.1 multi-channel inputs for DVD or other surround sound sources.
- ◆ P.E.M. D.D. 192kHz/24-bit converters for the front channels
- ◆ They feature CC Converter, an exclusive technology designed to deliver the best possible sound quality when playing compressed audio files. CC Converter improves the quality of these files using advanced digital signal processing that computes the data lost during the digital-to-analog conversion and recreates the original signal. \*Two modes are provided for improving the quality of compressed and non-compressed audio sources, respectively.
- ◆ They can perform video up-conversion (from composite to S-Video and component, and from S-Video to component) on one video input to another compatible signal for output. With the RX-D411S / RX-D402B, the format of an input can be converted to HDMI format for display on a compatible monitor with easy, one-cable connection.

##### RX-D301/RX-D302 Only

- ◆ Two assignable optical inputs, one optical output and an assignable coaxial input.
- ◆ The RX-D411S / RX-D412B offers a wired interface, while the RX-D301/D302B feature wireless playback using an included transmitter that plugs into your PC's USB port and sends a 2.4GHz signal to a receiver in the same room for file playback. The wireless link can transmit uncompressed files over a range of approximately 100'. To ensure uninterrupted performance, interference from other devices is automatically detected by the transmitter and an interference-free band is automatically selected.

##### RX-D411B / RX-D412B Only



- ◆ HDMI (High Definition Multimedia Interface) is a digital audio/video interface that allows a single cable to carry uncompressed audio and video signals in digital form, offering high quality signal transmission plus the simplicity of a single connection.
- ◆ With a HDMI-equipped source, such as a DVD player or a cable/satellite box, just one cable connects the component to the receiver. On the output side, a single HDMI cable connects the receiver to the display.
- ◆ Handling the HDMI up-conversion is a Genesis deinterlacer that incorporates DCDi (Directional Correlational Deinterlacing) technology from Faroudja.
- ◆ To ensure the best possible video signal, regardless of the source, the RX-D401/D402 receivers up-convert composite, S-Video and component signals to HDMI.
- ◆ Includes two HDMI inputs and one output.



## RX-D702B

### 7.1 Audio/Video Control Receiver

The RX-D702 (black) receiver combine advanced technological features along with seven channels of equal powered, high current, amplification (150 watts/channel) to deliver not only true audiophile sound, but seamless integration for your home theater and music listening system. The HDMI

interface not only provides a single cable solution between the RX-D702B and your display, but it also up-scales composite, S-Video and component video signals to the crystal-clear digital video format, allowing you to take advantage of the optimum picture quality offered by today's high definition TVs. The RX-D702B are truly the receivers of tomorrow. They feature not only a wired and wireless USB link between the receiver and your PC, but they also feature a SIRIUS satellite radio input, with remote control capabilities, that gives you access to cutting-edge digital radio.



#### FEATURES

##### Step-up Features from the RX-D301/302 and RX-D411/412

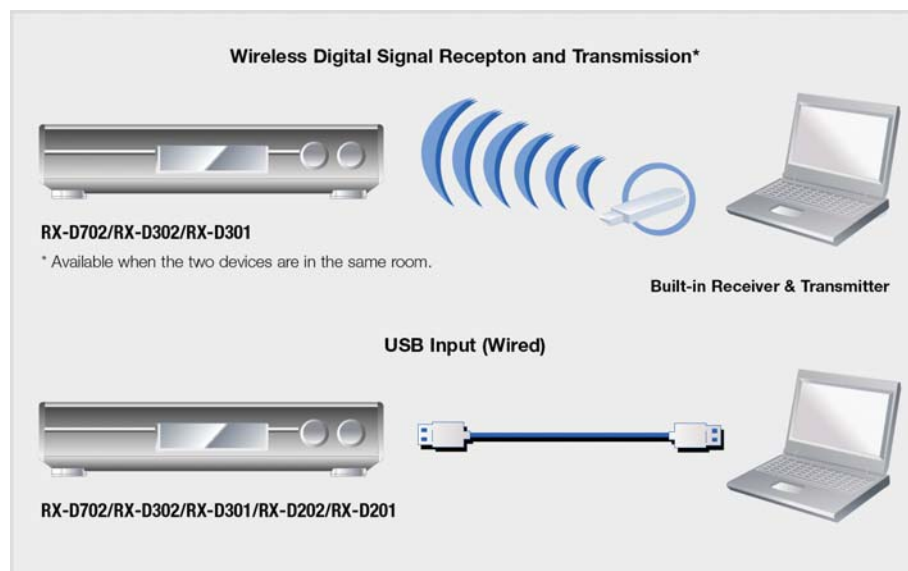
- ◆ Equal power to all seven channels: 150 watts per channel, 6 ohms at 1kHz, with 0.8% THD
- ◆ Stereo: 150 watts per channel, 6 ohms, from 20Hz to 20kHz, with 0.8% THD
- ◆ Aluminum front panel
- ◆ Smart Surround Setup 3.0 allows you to automatically set up the optimal multi-channel soundfield by offsetting speaker delay times and levels for the listening position just by clapping your hands
- ◆ Multi-brand glow remote control.
- ◆ The on-screen display makes receiver adjustments as convenient as possible.

##### Inputs and Outputs

- ◆ Five analog inputs and two outputs
- ◆ Three assignable optical inputs, one optical output and an assignable coaxial input.
- ◆ Four S-Video inputs and three outputs, four composite inputs and three outputs, and two component inputs and one output.
- ◆ Dedicated input for SIRIUS satellite radio with SIRIUS Control on Remote

##### Sophisticated digital technologies matching the latest home theater needs

JVC A/V receivers feature USB to interface with your PC — Wireless USB, which uses the built-in transceiver (transmitter/receiver), and Wired USB, which uses a USB cable. Combined with CC Converter — which significantly improves the sound quality of compressed music files from PC — this function lets you experience sound far superior to what comes from your laptop's tiny speakers. With Wireless USB, 2Mbps transmission rate using the 2.4GHz band allows lossless reproduction of even uncompressed files. Use of DSSS (Direct Sequence Spreading Spectrum) modulation technology enables transmission of uncompressed signals with superior resistance against noise, which retains superb sound quality.



## RX-Series Comparison Chart

	RX-D205 / 206	RX-D211 / 212	RX-D301 / 302	RX-D411 / 412	RX-D702
Number of Channels	7.1	7.1	7.1	7.1	7.1
Output Power – Stereo	110 watts per channel, 6 ohms, from 20Hz to 20kHz, with 0.8% THD	110 watts per channel, 6 ohms, from 20Hz to 20kHz, with 0.8% THD	110 watts per channel, 6 ohms, from 20Hz to 20kHz, with 0.8% THD	100 watts per channel, 6 ohms, from 20Hz to 20kHz, with 0.8% THD	100 watts per channel, 6 ohms, from 20Hz to 20kHz, with 0.8% THD
Output Power – Surround	100 watts per channel, 6 ohms at 1kHz, with 0.8% THD	100 watts per channel, 6 ohms at 1kHz, with 0.8% THD	110 watts per channel, 6 ohms at 1kHz, with 0.8% THD	110 watts per channel, 6 ohms at 1kHz, with 0.8% THD	150 watts per channel, 6 ohms at 1kHz, with 0.8% THD
<b>Circuitry</b>					
Dolby Digital EX / Dolby Digital	Yes	Yes	Yes	Yes	Yes
DTS	Yes	Yes	Yes	Yes	Yes
DTS ES – Discrete6.1 / Matrix6.1	Yes	Yes	Yes	Yes	Yes
DTS NEO:6 / DTS 96/24	Yes	Yes	Yes	Yes	Yes
DVD Multi-Channel Audio Inputs	No	No	5.1	5.1	5.1
Dolby Pro Logic II / IIx	Yes	Yes	Yes	Yes	Yes
Virtual Surround Back	Yes	Yes	Yes	Yes	Yes
3D PHONIC	Yes	Yes	Yes	Yes	Yes
3-D Headphones	Yes	Yes	Yes	Yes	Yes
CC Converter (2 Modes)	No	No	Yes (Front Channel)	Yes (Front Channel)	Yes (Front Channel)
P.E.M. D.D. Converter	No	No	192kHz/24-bit, Front ch	192kHz/24-bit, Front ch	192kHz/24-bit, Front ch
<b>Inputs and Outputs</b>					
Composite Video Inputs / Outputs	3 / 3	3 / 3	3 / 3	4 / 3	4 / 3
S-Video Inputs / Outputs	3 / 3	3 / 3	3 / 3	4 / 3	4 / 3
Component Video Inputs / Outputs	2 / 1	2 / 1	2 / 1	2 / 1	2 / 1
HDMI	–	–	–	2 Ins / 1 Out	2 Ins / 1 Out
Analog Audio Inputs/Outputs	4 / 2	4 / 2	4 / 2	4 / 2	5 / 2
Digital Inputs (optical/coaxial)	1 / 1	1 / 1	2 / 1	1 / 1	3 / 1
Digital Outputs (optical/coaxial)	– / –	– / –	– / –	– / –	1/–
USB Input Wired / Wireless	Yes / –	Yes / –	Yes / Yes	Yes / –	Yes / Yes
SIRIUS Radio Input	No	Yes	No	Yes	Yes
Preamp Outputs	Subwoofer	Subwoofer	Subwoofer	Subwoofer	Subwoofer
<b>Functions</b>					
DSP Digital EQ	Yes	Yes	Yes	Yes	Yes
Fluorescent Display with Dimmer	Yes	Yes	Yes	Yes	Yes
Dot Matrix Display	Yes	Yes	Yes	Yes	Yes
Center Channel Alignment	Yes	Yes	Yes	Yes	Yes
Quick Speaker Setup	Yes	Yes	Yes	Yes	Yes
Smart Surround Setup	No	No	No	No	Yes
One-Touch Operation	No	No	Yes	Yes	Yes
Midnight Mode	Yes	Yes	Yes	Yes	Yes
Number of Radio Tuner Presets	15 AM and 30 FM	15 AM and 30 FM	15 AM and 30 FM	15 AM and 30 FM	15 AM and 30 FM
AV Compu Link	Yes	Yes	Yes	Yes	Yes
RF Multi-Brand Remote	Yes	Yes	Glow	Glow	Glow
Dimensions	17 $\frac{1}{16}$ x 3 $\frac{3}{8}$ x 14 $\frac{1}{8}$ "	17 $\frac{1}{16}$ x 3 $\frac{3}{8}$ x 14 $\frac{1}{8}$ "	17 $\frac{1}{16}$ x 3 $\frac{3}{8}$ x 14 $\frac{1}{8}$ "	17 $\frac{1}{16}$ x 3 $\frac{3}{8}$ x 14 $\frac{1}{8}$ "	17 $\frac{1}{16}$ x 3 $\frac{3}{8}$ x 14 $\frac{1}{8}$ "



## TX-SR504

### 7.1-Channel A/V Receiver With XMHD Surround Capability

With the TX-SR504, Onkyo has redefined how you will look at an entry-level home theater receiver. Those new to home theater will love the user-friendly design and features, which include crossover adjustment for bass management, color-coded inputs and outputs for speakers, a logically laid-out front panel and an easy-to-use remote control.

Those looking to upgrade their current home theater receiver will be impressed with the 7.1 channel surround sound,

compatible with Dolby Digital EX, DTS-ES, DTS 96/24 and Dolby Pro IIx, as well as three HDTV-capable component video inputs, allowing you to integrate not only your cable/satellite receiver and DVD player, but also the next generation of video game console. And to add an even more exhilarating listening experience, the TX-SR504 will allow you to listen to selected XM Satellite Radio\* channels broadcasting in surround sound.



Available in black and silver finish



\*requires a paid subscription and optional antenna

## FEATURES

### Digital Format Decoding

- ◆ Dolby Digital EX, DTS-ES Discrete/Matrix 6.1, DTS 96/24 and DTS Neo:6
- ◆ Dolby Laboratory's Pro Logic IIx processing takes the guesswork out of surround processing by automatically deriving full 6.1-channel audio from absolutely any stereo or multichannel source.

- ◆ 7.1 channel processing for Dolby Digital EX and DTS-ES, and HDTV capable component video switching.
- ◆ Five identical, full-bandwidth, high-current, power amp channels deliver a continuous power output of 75 Watts per channel into 8-Ohm loads; plus two surround back channels sharing another 75 watt amplifier.

- ◆ High quality linear PCM 192 kHz/24-bit D/A converters for all channels along with a 32-bit DSP processor deliver superb reproduction of soundtracks and multichannel audio.
- ◆ **WRAT** (Wide Range Amplifier Technology) gives the power stage a linear frequency response from 10 Hz to 100 kHz to ensure it's up to the most challenging audio sources, such as SACD and DVD-Audio.
- ◆ **CinemaFILTER** control adjusts the tonal balance of a movie's soundtrack to perform better in the home theater environment.

## TX-SR304S 5.1-Channel A/V Receiver



A cost-effective 5.1-channel A/V surround receiver that will work in the real world, the TX-SR304S is entry-level, yet feature rich. It incorporates WRAT technology with 65w per channel x5. It has 192 kHz/24-bit DACs for all five channels and

32-bit processing for decoding Dolby Digital and Pro Logic II as well as DTS and DTS Neo:6. Four composite A/V inputs and 2 outputs, 2 digital inputs, 2 additional analog inputs and 5.1 multi-channel inputs keep your home theater connected. Other features include an adjustable crossover, a remote, AM/FM tuner with 30 presets, and Late Night Mode.

### AM/FM Tuner

- ◆ High quality AM/FM tuner section with 30 random presets, and FM auto scan tuning
- ◆ 75-ohm FM antenna input
- ◆ FM indoor/AM loop antennas supplied
- ◆ 35-segment dot-matrix fluorescent display, with three level dimmer, for fast and easy setup and operation of the receiver — including "Easy-Set" variable speaker configuration and distance settings for simple optimization of any speaker arrangement.

## TX-SR504

### Inputs and Outputs

- ◆ HDTV capable 50 MHz component video switching delivers high definition video signals without degrading video quality.
- ◆ Three component video inputs and one out
- ◆ Four A/V composite inputs and two outputs with alternate S-Video connections
- ◆ Front panel A/V inputs for convenient connection of portable devices.
- ◆ RCA line-level connections are available for a CD player and audio recorder
- ◆ Line level subwoofer preamp output
- ◆ Dual banana-plug-compatible multi-way speaker binding posts for all main channels with color-coding for simplified wiring, and front channel "B" terminals for a second set of stereo speakers.

### XM Satellite Radio\* (through XM Passport) with XM HD Surround

- ◆ XM Connect and Play port provide access to 160 digital channels of radio programming including 100% commercial-free music; over 30 channels of news, sports, talk and entertainment; and over 20 dedicated channels of XM Instant Traffic & Weather.
- ◆ XM Passport allows a mini satellite tuner to be easily connected to other XM Ready devices (like car audio and portable device players) using only one subscription.
- ◆ Onboard Neural Audio decoder facilitates XM HD Surround with 5.1 channels of digital surround sound on select XM Satellite radio stations.

### Conveniences

- ◆ The adjustable crossover system ensures that the subwoofer channel can properly integrate with any speaker combination.
- ◆ Digital speed-sensitive volume control.
- ◆ A-Form Auto Format Sensing Listening Mode Memory.
- ◆ A/B speaker drive.
- ◆ Late Night function reduces the dynamic range of Dolby Digital material so that you can still hear quiet parts at low volumes.
- ◆ Includes a preprogrammed, RI-compatible remote control.

## TX-SR574 7.1-Channel A/V Receiver

The TX-SR574 steps-up from the TA-SR504 with 80 watts per channel, for each of the seven channels, video up-conversion from composite and S-Video sources to HDTV compatible component, as well as enhanced compatibility with Onkyo's DS-A1 iPod control dock. The TX-SR574 takes full advantage of the DS-A1 Remote Interactive (RI) iPod dock/charger. When an iPod is placed in the dock, it becomes a source component for both audio files and photography, letting you listen to your music files and view image libraries directly through your home theater. Controls for the iPod such as play, pause, stop, skip, random and playlist access can all be operated via the TX-SR574's enhanced RI remote control.



## TX-SR604 7.1-Channel A/V Receiver



The TX-SR604 steps up from the TX-SR574 with an automatic speaker setup feature that makes calibrating a home theater system to its acoustical environment simple and fast. With the included microphone

in the listening position, the receiver sends test signals to each speaker in turn, then uses the input from the microphone to adjust channel level and time delay settings for each speaker.

### Step-up features from the TX-SR574 –

- ◆ 90 Watts per channel, continuous 8 Ohm, 20 Hz-20 kHz, FTC
- ◆ VLSC (Vector Linear Shaping Circuitry), for the L, C, R outputs, delivers a virtually noiseless, smooth analog output signal.
- ◆ On-Screen Display
- ◆ S-Video and Composite up-conversion to component video.
- ◆ Two HDMI inputs and one output with 1080p resolution.
- ◆ 2 audio inputs, 5 composite, S-Video compatible A/V inputs and 3 outputs
- ◆ Four optical (one front panel)/ two coaxial digital inputs and one optical digital output
- ◆ Powered Zone 2 (5.1 surround + stereo) capability provides the ability to drive a set of stereo speakers in another room using the rear surround channel amplifiers, or using an external power amplifier.
- ◆ Preprogrammed remote control.

### Audyssey 2EQ – Auto Speaker Set-up with Microphone

An acoustic analyzer and high-sensitivity microphone automatically adjusts the sound pressure level and time delay of each channel, thus ensuring that each channel is delivered synchronously and with the most accurate frequency response from your favorite listening spot.

## TX-SR674

### 7.1-Channel Home Theater Receiver



*The TX-SR674 is one of the most feature-rich home theater receivers in its class. It offers 95 Watts for each of its seven channels and offers a full complement of*

*audio and video interface capabilities including two HDMI (High-Definition Multimedia Interface) inputs and one output with up-conversion to 480p. And like the rest of the new generation of Onkyo's A/V receivers, the TX-SR674 offers compatibility with XMHD, XM Satellite Radio's surround sound broadcasting.*



#### Step-up Features from the TX-SR604 –

- ◆ 95w x 7 at 8 Ohms
- ◆ HDMI Video Up-conversion (480p)

## DS-A2

### Remote Interactive Dock

The DS-A2 docking station will allow you to listen to, watch video from, charge and control your iPod with most of today's Onkyo receivers, home theater systems and audio systems. Not only is the DS-A2 compatible with the full range of Onkyo products, it's also compatible with any audio system with RCA audio connections.



- ◆ Video out for Photo and video viewing
- ◆ RI controllable with most Onkyo systems using your Onkyo remote; plus a remote control included
- ◆ Built-in Onscreen graphics display Playlist Information (Artist, Album, Song, Genre, Composer)

## TX-SR703 / TX-SR804

### THX Select2 Certified 7.1-Channel A/V Receivers

*A holdover from Onkyo's previous generation, the TX-SR703 remains in the current component lineup due in no small part, to the uncompromising power and precision that has earned it THX Select2 certification. The TX-SR703 features 100 watts for each of its seven channels, and has three component video inputs with up-conversion. It is also XM satellite ready (not XMHD). It also employs Onkyo's Pure Audio mode that allows you to bypass all of the amplifiers DSP, thus transmitting the purest possible analog audio signals. The TX-SR804 steps-up with 105 watts for each of its seven channels; adds two HDMI inputs and one output, with up-conversion; and includes Neural Audio's Neural Surround processing for XMHD surround sound capability.*



#### TX-SR703 Step-up Features from the SR-674 –

- ◆ 100 Watts per channel into 8-Ohms
- ◆ THX Select2 / Surround EX Certified
- ◆ Ready for HDTV, Progressive Scan DVD, DVD-Audio and Super Audio CD
- ◆ Multi-channel preamp outputs
- ◆ Component video up-conversion with Time Base Correction
- ◆ Backlit, Preprogrammed & Learning Remote with Macros and Mode-Key LEDs
- ◆ Pure Audio function bypasses all digital processing to preserve the purity of analog audio signals
- ◆ 7 digital inputs (five optical and two coaxial); two digital outputs (one optical, one coaxial)
- ◆ Two switched AC outlets

#### TX-SR804 Step-up Features from the TX-SR703

- ◆ 105 Watts per channel into 8-Ohms
- ◆ Two HDMI inputs and one output allows you to make a single connection, for audio and video, between your components and receiver, and receiver and display.
- ◆ XMHD Surround Sound Ready



## TX-Series Comparison Chart

	TX-SR504	TX-SR574	TX-SR604X	TX-SR674	TX-SR703	TX-SR803
<b>Power Specifications</b>						
# Of Channels / Power Output (8 $\Omega$ , 20 - 20k Hz)	7.1 / 75 W/Ch	7.1 / 80 W/Ch	7.1 / 90 W/Ch	7.1 / 95 W/Ch	7.1 / 100 W/Ch	7.1 / 105 W/Ch
VLSC (Vector Linear Shaping Circuitry)	–	–	Front L/R Channels	All Channels	All Channels	All Channels
<b>Home Theater Features</b>						
THX Surround EX and THX Select2 Certified	–	–	–	–	Yes	Yes
Up-conversion To: S-Video / Component / HDMI	–	–	Yes / Yes / –	Yes / Yes / Yes	Yes / Yes / –	Yes / Yes / Yes
Multichannel Input	7.1	7.1	7.1	7.1	7.1	7.1
<b>Inputs and Outputs</b>						
HDMI Inputs / Outputs	–	–	2/1	2/1	–	2/1
Audio and A/V Inputs	2/4	2/4	2/5	2/5	3/5	
HDTV-Ready Component Video Input/Output	3/1	3/1	3/1	3/1	3/1	3/1
S-Video Compatible Jacks Input/Output	4/2	4/2	5/2	5/2	5/3	5/3
Digital Inputs / Outputs (Optical / Coaxial)	3/1/–/–	3/1/–/–	4/2/1/0	4/2/1/0	5/2/1/0	5/2/1/0
IR Input / +12V Output	–	–	1/0	1/0	1/1	1/1
Preamp Outs	Subwoofer	Subwoofer	Subwoofer	Subwoofer	7.1	7.1
Time Base Correction (TBC)	–	–	Yes	Yes	Yes	Yes
<b>Other Features</b>						
XM Satellite Radio Compatibility	HD Surround	HD Surround	HD Surround	HD Surround	Standard	HD Surround
DS-A2 iPod Dock Compatibility	Yes	Enhanced	Enhanced	Enhanced	Enhanced	Enhanced
Pure Audio Mode	–	–	–	–	Yes	Yes
Phono Input	–	–	–	–	Yes	Yes
Zone 2 (Multisource) Line Out	–	–	Line/Pre Out	Powered	Powered	Powered
A/B Speaker Drive	A and B	A and B	–	–	–	–
Number of Tuner Presets (FM/AM)	30	30	40	40	40	40
RI-Compatible Remote Control	Prepro	Prepro	Prepro	Prepro	Prepro/Learning	Prepro/Learning

## TX-8222 &amp; TX-8522

## 50- and 100-watt Stereo Receivers

The 50-watt per channel TX-8222 and the 100-watt per channel TX-8522 are full-featured stereo receivers, with a flexible range of I/O and compatibility with today's most in demand audio technologies. The TX-8222 offers five audio inputs and two outputs plus a phono input. The TX-8522 offers three audio inputs, plus a phono input, and two A/V inputs with composite video connectors. The TX-8522 also features two audio outputs and an A/V out. Behind their brushed hairline aluminum front panels is some of Onkyo's most impressive audio circuit designs including WRAT (Wide Range Amplifier Technology), High-Current, Low-Impedance Drive technology and discrete output stage circuitry. Both units also offer an AM/FM tuner with 40 presets, compatibility with Onkyo's iPod docking station and include a full featured Remote Interactive remote control. The TX-8522 adds an XM-Ready input and Pure Audio mode for direct analog signal capability.



## TX-NR1000 V2 Upgradeable Home Theater Receiver



*Onkyo has now adapted the computer industry's architecture of replaceable modules, upgradeable software, and build-to-order marketing with the introduction of the TX-NR1000. These will make it possible for you to upgrade and even customize hardware and software to avoid short-term obsolescence. As new modules become available, customers will have choices, just as they do when purchasing a computer.*



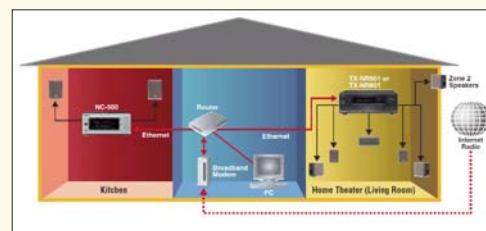
The TX-NR1000 Home Theater Receiver with interchangeable card

### FEATURES

- ◆ 150 watts of power for each of the seven channels driving 8-ohm speakers
- ◆ All amplifier channels use WRAT (Wide Range Amplifier Technology) to provide the 5 Hz to 100-kHz bandwidth called for by today's wide-band audio modes
- ◆ Excellent build-quality and premium parts are used throughout, including state-of-the-art Wolfson 192 kHz/24-bit D/A converters for all channels
- ◆ Advanced Net-Tune capability provides access to internet radio or MP3 and WMA digital music files stored on your PC — up to 11 other Net-Tune client receivers can run simultaneously on the same network.
- ◆ Composite and S-Video upsampling to component video greatly simplifies switching and connections when mixing video source components from different generations.
- ◆ Three-zone capability, five 12-volt triggers, three IR outputs, and a bi-directional RS-232 port for software upgrades and connection to home automation systems.

### Net-Tune

- ◆ Onkyo's exclusive Net-Tune capability uses a standard TCP/IP Ethernet connection to unite the receiver with MP3 and Windows Media Audio (WMA) files stored on a home PC, or to access Internet radio streams via a networked broadband Internet connection.



- ◆ The receiver's on-screen display shows song title, artist, album, genre, and playlist information, making the entire family's music collection easy to store and access.
- ◆ Up to 11 other Net-Tune clients can connect to the same network, all delivering simultaneous and independent access to music stored on a central PC.

### Future-Proof Design

- ◆ THX Ultra2 Network AV receiver with key audio and video processing and interface features provided on plug-in circuit modules
- ◆ Upgradeable hardware allows you to take advantage of future technologies and add brand new capabilities by replacing a card instead of the entire receiver
- ◆ Future upgrades will include high-tech broadcast reception, advanced networking, processing circuits, and even interface standards that don't yet exist
- ◆ High quality audio and video HDMI high definition multimedia interface with two inputs and one output for compatibility with the DVI digital video interface found on the newest high-end AV components.
- ◆ THX, Dolby, and DTS processing modes, including Dolby Pro Logic IIx.
- ◆ Remarkable level of compatibility and connectivity with more audio/video and audio-only inputs than almost any home system could ever need.

### Connections

- ◆ Seven optical and six coaxial digital audio inputs as well as two optical and 2 coaxial digital outputs
- ◆ RCA stereo inputs and outputs, a phono input
- ◆ Two high quality HDMI inputs and one output
- ◆ A pair of iLink (IEEE1394) digital inputs allow bit-for-bit digital transfer of DVD-Audio and SACD audio without violating copy-protection controls.
- ◆ Digital Input for DVD-Audio and SA-CD
- ◆ Two complete seven-speaker sets of transparent banana plug speaker terminals.
- ◆ BTL and Bi-Wiring Connectable for FL/FR with SBR/SBL
- ◆ Front Panel Optical, S-Video & A/V Inputs
- ◆ 4 component inputs (4 Assignable) / two Outputs (2 Assignable)
- ◆ Color-Coded Multi-Channel Inputs and 7.1-Ch Pre Outs

## SA-XR57 (K/S)

### 7.1 Channel Home Theater Receiver

Recognizing the need for high quality performance with easy set-up, Panasonic has designed the SA-XR57K (black) and SA-XR57S (silver) to let you access the full benefits of home theater entertainment in elegant, slim and sleek units. The SA-XR57 is a fully digital receiver that feature extended frequency response up to 88kHz. This provides rich reproduction of the ultra-high frequency range that affects the musical ambience and mood. The SA-XR57 also features an HDMI (High-Definition Multimedia Interface),

which simplifies the connection to other audio/video sources and provides high quality audio and video playback. HDMI transmits digital and audio signals at speeds of up to 5GB per second without compression — this produces extremely pure sounds free from noise and signal degradation and allows for high quality audio and video with fewer cables.



#### FEATURES

##### Amplifier Section

- ◆ High Efficiency Digital Amplifier
- ◆ Stereo Power (RMS): 100 Watts x two, 0.09% THD, 20 Hz-20 kHz, 6 ohms
- ◆ Surround Power (RMS): 100 Watts x seven, 0.9% THD, 1 KHz, 6 ohms
- ◆ DVD-Audio ready

##### Inputs/Outputs

- ◆ Seven RCA stereo audio inputs (including a pair on the front panel) and two outputs
- ◆ Two optical and two coaxial digital inputs
- ◆ Five composite video inputs (including a pair on the front panel) and two outputs
- ◆ Three S-Video inputs (including a pair on the front panel) and one output
- ◆ Two component video inputs and one output
- ◆ Subwoofer preamp output
- ◆ One HDMI input and one output
- ◆ Five-way binding post speaker terminals for all seven channels
- ◆ Subwoofer preamp out
- ◆ AM and FM antenna outputs

##### Processing

- ◆ Supports today's most advanced surround sound formats, including Dolby Pro Logic IIx, Dolby Digital EX, DTS 96/24, DTS-ES and DTS NEO:6.
- ◆ Full-digital processing from signal input all the way through to the output, lets you enjoy the full potential of today's most advanced audio sources. You get extremely clear, powerful sound with remarkable depth, richness, and presence.
- ◆ Bass Synthesizer delivers superior bass sound by helping to reinforce the low frequencies.
- ◆ SFC (Sound Field Control) provides an enhanced sound experience with greater presence and spread.

##### Music Modes:

Live, Pop/Rock, Vocal, Jazz, Dance, Party

##### Video/Movie Modes:

Drama, Action, Sports, Musical, Game, Mono

- ◆ Multi-Source Re-Master adds home-theater-like sound quality to compressed music files such as MP3, WMA and AC-3 files. Re-master processing helps to compensate for any frequencies lost due to compression during recording, providing a rich sound field.

##### AM/FM Tuner

- ◆ Digital Synthesizer AM/FM Tuner with 40 station presets (Frequency Range - FM Tuner: 87.9-107.9MHz, AM Tuner: 530-1710kHz)

##### Conveniences

- ◆ Upgradeable to rear speaker wireless with the optional Panasonic SH-FX60 wireless interface kit
- ◆ A and/or B speaker selector
- ◆ Take control of your A/V system with the included remote control. After some simple program you'll be able to command many different brands and types of components.
- ◆ EZ-Sync HDAVI Control takes HDMI to a new level, allowing you to control all of your A/V functions with just one remote. HDAVI Control can also be used for one button operation between the receiver, and other select Panasonic components, connected via HDMI cables, such as DVD recorders and TVs.

##### Measurements

- ◆ Dimensions (WxHxD): 16.9 x 4.3 x 15.5"
- ◆ Weight: 9.9 lbs



## VSX-516 (K/S) • 816 (K/S) • 1016TXV

The VSX-516 (K/S), VSX-816 (K/S) and the VSX-1016TXV are all designed to give end-users the ultimate control over their home entertainment experience. Each is DVD-Audio and SACD ready, and all except the VSX-516 (K/S) offer Pioneer's automatic Multi-Channel Acoustic Calibration (MCACC), giving you the ability to easily and accurately set-up speakers with optimal performance based on your room environment. Each receiver offers component and S-Video switching to allow both progressive and interlaced NTSC

and HDTV signals to be passed to the television or monitor. To maintain future compatibility, they each have multiple, assignable digital inputs (both coaxial and optical). All come with either a standard remote or a preset/learning remote and Quick Setup feature for easy room setup. The Quick Setup feature walks you through the set-up process choosing the number of speakers connected and selecting the room size for very easy and accurate surround sound performance when you don't want to use the MCACC function.

The **VSX-516 (K/S)** features built-in DTS, DTS-ES, DTS 96/24, NEO 6, Dolby Digital, Dolby Digital EX and Pro Logic IIx decoders, 100 Watts x five channels, Windows Media Audio 9 Pro decoding, Virtual Surround Back mode, Midnight Listening mode, three digital inputs, component video I/O and subwoofer preamp out. Available in black and silver. The **VSX-816 (K/S)** steps-up with 110 watts x seven channels, XM-ready with Neural Audio surround sound, MCACC (Multi-Channel Acoustic Calibration System), five digital inputs, digital optical output and dual surround back speaker capability. Available in black and silver.

The top-of-the-line **VSX-1016TXV** steps-up with THX Selects certification designed for high-impact multi-channel audio in rooms of up to 2,000 cubic feet.



### VSX-516-K/S FEATURES

#### Amplifier Section

- ◆ Hybrid amplification system ensures that the correct amount of bias signal is applied to each transistor for very low distortion.
- ◆ 5.1 channel input with 100 watts of equal High Power for all five channels

#### Inputs and Outputs

- ◆ Three analog audio inputs
- ◆ Three A/V inputs with analog RCA and composite video connectors
- ◆ One stereo audio, one A/V and one video output
- ◆ Subwoofer preamp output
- ◆ Two coaxial and one optical digital inputs
- ◆ Two component video inputs and one input
- ◆ 5.1 Channel analog input
- ◆ Seven large binding post speaker terminals

#### Processing

- ◆ Built-in DTS, DTS-ES, DTS 96/24, NEO 6, Dolby Digital, Dolby Digital EX and Pro Logic IIx decoders
- ◆ Virtual Surround Back Mode deepens the sound stage by creating a "phantom" rear surround effect without the use of surround back speakers.
- ◆ 7-channel stereo mode simulates a regular stereo acoustic environment while using all the speakers in the system to create original surround modes.
- ◆ Expanded Theater mode expands the depth, breadth and dynamics of Dolby Surround sources, for more faithful reproduction of 5-channel sound.
- ◆ DVD-Audio/SACD Ready
- ◆ 192kHz/24-bit digital to analog converters for all channels
- ◆ Nine advanced surround modes

#### Conveniences

- ◆ AM/FM tuner with 30 station presets
- ◆ Sound Retriever technology enhances the playback quality of compressed audio files.
- ◆ Easy-to-use Smart Remote control is fully capable of operating Pioneer's DVD players
- ◆ Quick Set-up function offers the ultimate in convenience. Just input the room size and number of connected speakers; and the optimal levels and delay are automatically set.
- ◆ Tuner Edit Operation
- ◆ Midnight Listening Mode allows you to hear effective surround sound of movies at low volume levels. The effect automatically adjusts according to the volume at which you're listening.
- ◆ Fluorescent display with four level dimmer

## VSX-516 (K/S) • 816 (K/S) • 1016TXV

VSX-816-K/S  
STEP-UP FEATURES

- ◆ 7.1 channels with 110 watts of equal high power for all seven channels
- ◆ XM-Ready with Neural Audio Surround and on-screen display.

## Inputs and Outputs

- ◆ Four analog audio inputs and 4 A/V inputs
- ◆ 7.1 channel preamp outputs
- ◆ Two coaxial, two optical, and one front panel optical digital input; one optical output
- ◆ Three component video inputs and one output; four S-Video inputs and two outputs
- ◆ Front A/V inputs with analog audio, S-Video, composite video and optical connectivity

## Conveniences

- ◆ Room size and shape, floor and wall textures, the quality and size of your speakers affect system performance. Automatic MCACC (Multi-Channel Acoustic Calibration System) Set-up, with a 5-band EQ, and microphone helps you fine tune your speakers to the room you're in.
- ◆ Advanced Quick Set-up
- ◆ Pre-programmed LCD Remote



VSX-816K  
Available in Black and Silver

VSX-1016K  
Available in Black and Silver



## VSX-1016TXV STEP-UP FEATURES

- ◆ Advanced Direct Energy MOSFET construction uses heat compensation in the power chip and an AC/DC isolated amp module to minimize power imbalances that can distort the sound stage. This offers high-power drivability, ultra-efficient amplification, stable imaging, and low energy loss.
- ◆ THX Select2 certified
- ◆ Two HDMI inputs and one output with 1080p resolution (video only)
- ◆ Five S-Video inputs
- ◆ Surround back speakers can be used as a 2nd zone for use with an alternate audio source
- ◆ The Loudness listening feature provides enhanced bass and treble response from music sources at low volume levels.
- ◆ Optional IDK-01 A/V dock for iPod allows playback of audio as well as viewing of photo and video

	VSX-1016TXV	VSX-816-K/S	VSX-516-K/S
Surround Power	110 Watts x 7 (8Ω, 20Hz - 20kHz)	110 Watts x 7 (8Ω, 1kHz 1.0% THD)	110 Watts x 5 (8Ω, 1kHz 1.0% THD)
Auto Multi-Channel Acoustic Calibration	Auto MCACC (w/mic)	Yes (w/mic)	—
THX	Select2 Certification	—	—
DVD-Audio Ready	Yes	Yes	Yes
HDMI Input / Output	2 / 1 (1080p, video only)	—	—
Video converter	Yes component	—	—
Component Video Inputs / Outputs	3 / 1	3 / 1	2 / 1
Audio (tuner included) and A/V Inputs	3 / 5 A/V	4 / 4 A/V	3 / 3 A/V
Rear Panel Digital Inputs (optical / coaxial)	3 / 2	3 / 2	1 / 2
Front Panel A/V inputs w/ optical	Yes	Yes	—
S-Video Inputs / Outputs	5 / 3	4 / 2	—
Multi-Channel Inputs	7.1	5.1	5.1
Preamp Outputs	7.1	7.1	Subwoofer Only
Digital to Analog Conversion (DAC)	24-bit / 192kHz	24-bit / 192kHz	24-bit / 192kHz
Digital Engine	Dual 48-Bit Freescale DSP	Freescale 180 MIPS Processing DSP	Freescale 180 MIPS Processing DSP

### RD-6105 / RD-6500 / RD-8601

#### 100 Watt 5.1 Channel A/V Receivers

The RD-6500, RD-6105, and RD-8601 are affordable home theater receivers that deliver 5.1 channels of surround sound with an impressive 100 watts per channel into 6 ohms. Each of the RD series receivers are built around the same chassis, with a sleek, modern exterior and discrete wide-band amplifiers designed to offer the best possible sonic translation from the built-in Dolby Digital and DTS decoders. Each of the three receivers employs three A/V inputs, including one, conveniently, on the front panel, coaxial and optical digital inputs, six direct channel inputs (7 on the RD-8601), five speaker outputs and a subwoofer preamp output, for use with an active subwoofer. Other features include a quartz PLL tuning radio tuner with 30 presets, and a sleep timer, as well as sonic enhancements such as three DSP modes, Cinema EQ, and dynamic range control.



#### They All Feature

- ◆ 100 Watts per Channel x 2 in Stereo Mode with less than 0.9% THD, 40 Hz-20 kHz, 6 Ohms; 100 Watts x 5 in Surround Mode
- ◆ Three A/V inputs including a front panel A/V input with S-Video, composite video and analog RCA audio connections
- ◆ S-Video, composite and RCA analog audio monitor outputs
- ◆ Analog RCA CD inputs, tape play and record RCA I/O
- ◆ Built-in AM/FM radio tuner with quartz PLL tuning, preset scan, and 30 station presets
- ◆ Totally Discrete Amplifier Stage (TDAS)

	RD-6500	RD-6105	RD-8601
Digital Inputs	2 Coax / 1 Optical	2 Coax / 1 Optical	2 Coax / 2 Optical
Digital Outputs	—	—	1 Optical
Direct Inputs	6	6	7
Component Video I/O			2 / 1
Dynamic Range Control	✓	✓	Multi-Step
Dolby Pro Logic II	✓	✓	✓
DTS	—	✓	ES Discrete and Matrix Neo Cinema and Music
Dolby Digital	✓	✓	Surround EX
Dolby Virtual Surround			✓
Remote Control	Unified	Unified	Advanced Multi-Brand
Dimensions (WxHxD)	17½ x 5½ x 13"	17½ x 5½ x 13"	17½ x 5½ x 13"

### RX-4105 100-watt Stereo Receiver



The RX-4105 is a cost-effective, 100 watt per channel stereo receiver with all discrete amps. Don't be fooled by the RX-4105's budget price as it is built with the same attention to detail as the products Sherwood has been designing for the past 50 years. The RX-4105 provides plenty of audio inputs: five in all including a radio tuner with quartz PLL synthesized digital tuning, preset scan and 30 station

presets. The receiver also offers switching for two pairs of speakers. And the sound quality is superb due to Sherwood's Totally Discrete Amplifier Stage (TDAS). Other features include a digital encoder volume control, bass and treble controls, sleep timer, system illumination and a 25 key unified remote control.

- ◆ 100 Watts/Channel x 2 in Stereo Mode with less than 0.08% THD, 20 Hz-20 kHz, 8 Ohms
- ◆ Five audio inputs, including radio tuner and switching for 2 pairs of speakers.
- ◆ Quartz PLL Synthesized Digital Tuning
- ◆ Dimensions (WHD): 17½" x 4¾" x 14"



## DD-6200 • DD-5080C

### Dual Auto Reverse Cassette Decks

For those of us old enough to remember what a cassette tape is, or want to re-live the glory days of analog, Sherwood offers the DD-6200 and DD-5080C twin auto-reverse cassette decks. Both units offer full logic control, a twin motor drive system and super Hi-B tape heads. Both units features high speed dubbing, relay play, blank tape skip, synchro record/dub and CD sync record as well as 20 track music search, memory stop and record mute. Both units also offer an automatic tape selector, electronic realtime tape counter, and Dolby B noise reduction and HX Pro headroom extension, with the DD-5080C adding Dolby C NR. Additionally each unit has a headphone output and high quality, gold-plated RCA inputs and outputs ensure worry-free interfacing with your other equipment. Both units are also offer Digi-Link III System compatibility with other Sherwood products.



### CDC-5090R Five Disc CD Changer



The CDC-5090R is a CD player with a front-loading 5-disc carousel, three beam laser pick-up, twin 1-bit digital-to-analog conversion as well as a Bitstream Design 8x oversampling digital filter. Connectivity found on the CDC-5090R includes gold-plated analog RCA outputs, a coaxial digital outputs as well as a headphone output with

level control. A variety of special playback and programming modes are available on the CDC-5090R including 32-track program memory, repeat, A-B repeat, random play, random sequential, delete play and intro scan as well as play exchange and tape edit/ size adjustment. The large fluorescent display not only provides standard track information and programming information, it also tells you the status of loading discs. The CDC-5090R includes a self system remote control and offers Digi-Link III System compatibility with other Sherwood products.

### HSB-6501 HDMI-Link

The HDMI-Link is an advanced audio/video switcher and video format converter designed to integrate the video output from an advanced A/V receiver with the A/V output of two HDMI-capable digital A/V source units into an HDMI-capable video monitor or TV. The HDMI-Link provides remote (or RS-232) switching for 2 HDMI source units and



converts any component video input into an HDCP-compliant HDMI output. The HSB-6501 has two HDMI inputs and one output; one component video input and one optical audio input and one output; as well as an RS-232 port.



## STR-DG500/600/800

### A/V Receivers

*Whether it's simplifying set-up of a surround sound system and automatically adjusting performance, maximizing the performance of a portable audio device, or expanding the appeal of XM radio and bringing it home, Sony's A/V receivers optimize the home theater experience.*

*The STR-DG500 6.1 channel and STR-DG600 7.1 channel receivers offer 110 watts of power per channel, Digital*

*Cinema Sound processing for studio quality reproduction, two optical inputs,*

*one assignable coaxial input and component video switching capable of high-definition pass through. They also include Sony's Digital Cinema Auto Calibration (DCAC), which helps set-up and customize the receivers' audio performance based on its room environment. Simply plug-in the included microphone and the DCAC adjusts for speaker placement, distance and delay based on information collected by the mic and processed in the receiver. In addition, the STR-DG600 is XM Connect and Play ready, offers an adjustable advanced A/V sync matching audio with video, two additional optical inputs, two assignable coax inputs and assignable component video inputs for switching between HD sources as well.*

*The STR-DG800 7.1 channel steps-up with HDMI pass-through, for a simple and robust all-digital one cable interface, and Portable Audio Enhancer so you can plug in any portable audio player. The receiver will then apply its proprietary digital signal processing on the compressed audio, improving its clarity and depth by adding information to the audio signal that had been removed during compression. The receiver also offers assignable component video inputs and a remote control that can operate a second zone. The A/V receiver also is equipped with a second zone passive RCA output and comes with five inputs and two outputs for A/V and three inputs and one output for audio.*



### STR-DG500

#### General

- ◆ 660 watts total: 110 watts x 6 channels (8ohms 1kHz, THD 0.7%)
- ◆ Decoding for Dolby Digital/Digital EX, DTS 96/24, DTS ES and Dolby Pro Logic II / IIx
- ◆ Dolby Digital adjustment lets you match the decoder output to your specific speaker set-up and listening room.
- ◆ DSP with 11 acoustic environments
- ◆ Digital Cinema Sound Studio Modes digitally recreate acoustic environments based on actual measurements made at top dubbing stages in Hollywood.
- ◆ Virtual Dolby Surround provides surround sound effect—without rear speakers
- ◆ Sound Field Modes (Movie, Music, AFT, 2 Channel) — Movie: 3 Modes; Music: 3 Modes; AFT: 4 Modes; 2 Channel: 1 Mode
- ◆ Sound Field Link let's you apply the last selected sound field to an input whenever it is selected.
- ◆ Variable Delay Time adjusts the surround sound to match your listening room and speaker setup. Synchronizes the arrival of sound from all the different speakers.

#### Inputs and Outputs

- ◆ 5.1 input with full access to the receiver's powerful surround sound processing.
- ◆ Six audio inputs: two dedicated audio and four A/V; one audio output
- ◆ Two optical and one coaxial digital input
- ◆ Two HD compatible component video inputs and one output
- ◆ Four composite inputs (one front, three rear); one composite output
- ◆ Subwoofer preamp output

#### Conveniences

- ◆ Digital Cinema Auto Calibration is a simple and effective multi-channel surround sound setup utility for creating a perfectly balanced home theater system.
- ◆ A/V Sync DSP uses delay to ensure proper lip sync when using today's advanced flat panel televisions and microdisplays.
- ◆ AM/FM tuner (auto and direct tuning) with 30 presets
- ◆ Remote Commander with Direct Access track selection, title input and power on/off.

## STR-DG500/600/800

**STR-DG600 Step-up Features**

- ◆ 7.1 channel receiver offer 110 watts of power per channel.
- ◆ Three S-Video inputs and one output.
- ◆ Control A1 II interface enables a receiver to communicate with other Sony audio components with the same interface.
- ◆ Pre-programmed remote works with many non-Sony components.
- ◆ Adjustable advanced A/V sync matching audio with video.
- ◆ Four optical inputs, three assignable coaxial inputs and two assignable component video inputs for switching between HD sources.
- ◆ XM Radio with on-screen navigation display (requires optional XM Connect and Play antenna and XM Radio subscription).

**STR-DG800 Step-up Features**

- ◆ Component video up-conversion allows composite and S-Video sources to be converted to component video output.
- ◆ Analog direct allows you to bypass digital processing when playing back analog source material.
- ◆ DSP with 13 acoustic environments.
- ◆ Two HD compatible component video inputs and one output.
- ◆ Two HDMI inputs and one output.
- ◆ Five composite video inputs (one front); three rear panel composite video outputs.
- ◆ Four optical audio inputs (one front and three rear); one optical audio output.
- ◆ Two rear panel coaxial digital audio inputs.
- ◆ Eight RCA analog audio inputs: 3 dedicated and 5 A/V; three RCA analog audio outputs: two A/V and one audio.
- ◆ 7.1 channel multi-channel inputs.
- ◆ Subwoofer preamp output.
- ◆ Second zone analog audio output.
- ◆ Phono input.
- ◆ Portable Audio Enhancer lets you to plug in any portable audio player, and then employs proprietary digital signal processing on the compressed audio, improving clarity and depth.
- ◆ Two rear panel switch AC outlets.
- ◆ Includes a remote control that can operate a second zone.

**STR-DG1000** Blu-ray Optimized 7.1 Channel A/V Receiver

The 7.1 channel STR-DG1000 A/V receiver (120 watts of power per channel) has several HD enhancing features, beginning with dual HDMI active intelligence, which automatically detects and receives the best possible video and audio signals from connected devices. This all-digital path from source to display also handles 1080p resolution and up to eight channels of uncompressed audio. The receiver also offers an on-screen display for set-up and control, as well as a powered multi-room function for two-channel enjoyment in an adjoining room along with XM Connect and Play satellite radio capabilities.

It supports HDMI switching and the up-conversion of composite, S-Video and component video sources to HDMI, minimizing the number of connections between the receiver and display.

The receiver also offers a powered multi-room capability. While you enjoy 5.1 channel sound in the main room, the remaining two channels can be routed into a second room that allows you to independently play any device connected to the receiver. The A/V receiver also comes with assignable HDMI, component and optical inputs, as well as five inputs and two outputs for A/V, and three inputs and one output for audio.

**STR-DG1000 STEP-UP FEATURES**

- ◆ 120 watts of output power x 7 channels (8 ohms, 1Khz, 0.7% THD)
- ◆ Three rear panel coaxial digital audio inputs
- ◆ 7.1 channel preamp outputs
- ◆ Dual HDMI active intelligence automatically detects and receives the best possible video (up to 1080p) and up to eight channels of audio from connected devices.
- ◆ Up-conversion of composite, S-Video and component video sources to HDMI minimizes the number of connections between the receiver and your display.



**STR-DG500/600/800/1000** Comparison Chart

	<b>STR-DG500</b>	<b>STR-DG600</b>	<b>STR-DG800</b>	<b>STR-DG1000</b>
Surround Power Output	110 Watts X 6 (8ohms 16kHz, THD 0.7%)	100 Watts x 7 (8 ohms, 1Khz, 0.7% THD)	100 Watts x 7 (8 ohms, 1Khz, 0.7% THD)	120 Watts X 7 (8 ohms, 1Khz, 0.7% THD)
Equal Power to all Channels	Six	Seven	Seven	Seven
DSP Acoustic Environments	11	11	13	13
Digital Cinema Sound System	Yes	Yes	Yes	Yes
Cinema Studio EX Modes	Yes	Yes	Yes	Yes
Soundfield Modes	15	14	14	14
XM-Connect and Play Compatible	–	Yes	Yes	Yes
Analog Direct	–	–	Yes	Yes
AM/FM Presets	30 / 30	30 / 30	30 / 30	30 / 30
Multi-Channel Analog Inputs	5.1	5.1	7.1	7.1
Front A/V Inputs	Yes	Yes	Yes w/optical	Yes w/S-Video, optical
Analog Audio Inputs/Outputs	6/1	7/2	8/3	8/3
Composite Video Inputs/Outputs	4/1	4/1	5/2	5/3
S-Video Inputs/Outputs	–	3/2	3/2	4/2
Component Video Inputs/Outputs	2/1	2/1	2/1	3/1
HDMI Inputs/Outputs	–	–	2/1	2/1
Video Monitor Output (Composite/S-Video)	1/–	2/1	1/1	1/1
Up-Conversion	–	To S-Video	To Component	To HDMI
Assignable Digital Inputs	–	–	Yes	Yes
Optical Digital Inputs/Outputs	2/–	4/1	4/1	4/1
Coaxial Digital Input	1	2	2	3
Phono Input	–	–	Yes	Yes
Headphone Output	Yes	Yes	Gold Plated	Gold Plated
2nd Zone Audio Output	–	–	Yes	Yes
Multi-Room Audio Outs w/ Independent Source Selection	–	–	–	Yes
Preamp Outputs	Subwoofer	Surround & Subwoofer	Surround & Subwoofer	7.1
Remote Control	Remote Commander Pre-Programmed	Remote Commander	Remote Commander with Learning Macros	LCD Remote Commander with Learning Macros
AC Outlet (switched)	–	1	2	2
Finish	Black	Black	Black	Black
Dimensions	17 x 6½ x 12⅞"	17 x 6½ x 12⅞"	17 x 6½ x 12⅞"	TBD
Weight	17 lbs. 10 oz	17 lbs 10 oz	25 lbs 6 oz	40 lbs.

**AG-370 • AG-790A****AM/FM Stereo Receivers**

The AG-370 and AG-790A are stereo audio receivers, with built-in quartz PLL synthesized radio tuners, designed with a wide range of inputs and advanced circuitry to provide superlative quality sound at an affordable price. The AG-370 has 50 watts of power for each of its two channels using Teac's High Current Output Circuitry (H.C.O.C.), while the AG-790A delivers 100 watts of power for each of its two channels using Teac's own Discrete Output Circuit Configuration (D.O.C.C.).

- ◆ They each feature a built-in radio tuner with auto, manual and preset tuning capabilities. The AG-370 can store 16 FM and 8 AM presets, and the AG-790A can store 30 FM and 30 AM presets.
- ◆ They have 4 audio inputs (CD, Tape, Phono, Video/Aux) and one audio output. Bass, treble and balance controls and loudness button provide enhanced bass and treble response when listening at lower volumes.
- ◆ Other shared features include a multi-function fluorescent display, A/B speakers selection, a front panel headphone output and full function 'Unified' remote control.

**AG-D9320 5.1 Channel A/V Receiver**

The AG-D9320 offers 5.1 channel surround sound capabilities with Dolby Digital, Dolby Pro Logic and DTS, 100 watts of power for each of the five channels and 24-bit/96kHz digital-to-analog converters. It offers a host of connectivity with four A/V inputs (including one front panel), two A/V outputs (composite and S-Video); two component video inputs and one output; three digital inputs (two optical, one coaxial) and one optical output. Additional

analog audio I/O includes CD inputs, two sets of tape record and playback I/O and phono inputs, as well as six channel direct inputs, for direct input of a DVD player and six channel preamp outputs. Other features include five enhanced surround processing modes (Theater, Stadium, Hall, Disco, Church), front panel headphone output, two switched AC outlets and a wireless learning remote.

**PD-D2410 • PD-D2610**  
5 CD Player/Changers

The PD-D2410 and PD-D2610 are CD-R/RW compatible players with a 5-disc changer accessed via a precision, front-loading drawer. Both units feature one analog output as well as an optical and coaxial digital output. Navigation is made easy with 5-disc direct access keys and 10-digit direct track access keys. Both also offer a range of programming features including 32-track Random Memory Programming, 3-way repeat (one, all, Program) and Shuffle Play / Intro Check Play. The PD-D2610 adds the ability to playback MP3 CDs.

**CD-A500**

## CD / Cassette Combo Deck

The CD-A500 combines a CD player and a cassette deck with a bi-directional cassette mechanism in a 3U rack mount. The CD player offers shuffle and program play modes, while the tape side features Dolby B noise reduction,  $\pm 12\%$  pitch control and a return to zero function. Other features include remote, headphone out with level control and analog I/O.



## HTR-5930/5940/5950/5960/5990/6090

### Natural Sound Home Theater Receivers

Yamaha A/V receivers are ready for all audio and video formats. They offer DTS-ES, Dolby Digital and Dolby Pro Logic II decoding, with 192kHz/24-bit digital-to-analog converters that deliver state-of-the-art 5.1-, 6.1- and 7.1-channel surround sound from DVD and HDTV broadcasts. Equipped with Yamaha's exclusive Cinema DSP, they create rich and deep independent sound fields that envelope listeners in an unmatched surround sound experience. Night Listening Enhancer ensures that listeners won't miss quiet passages or lose surround spaciousness during low-volume listening. Silent Cinema provides private listening enjoyment of multi-channel music or movie sound, including Dolby Digital and DTS Surround, through ordinary headphones. All units are now XM-Ready with selected models offering XMHD surround sound capability via Neural Audio's Neural Surround processing. For convenience, they include a pre-coded, easy-to-use remote with keypad arranged for easy access.



The **HTR-5930** delivers 110 watts (6 Ohms, 1kHz) of equal power for five channels with three assignable digital inputs, the **HTR-5940** steps up with 100 watts (8 Ohms, 1kHz) of equal power for six channels and adds Digital ToP-ART (Total Purity Audio Reproduction Technology). The **HTR-5950** goes to 105-watts (8 Ohms, 1kHz) and adds component video up-conversion. The **HTR-5960** offers 110 watts (8 Ohms, 1kHz) of equal power for seven channels, 9-channel speaker output, 8 channel external decoder inputs. The **HTR-5990** and the **HTR-6090** both offer 140-watts (8 Ohms, 1kHz) of equal power for seven channels and HDMI up-conversion. The **HTR-5990** adds THX Select2 processing.

#### FEATURES

- ◆ 5.1 channel surround sound with 110 watts per channel into 6 ohms (550 watts total)
- ◆ Dolby Pro Logic II, Dolby Digital Surround, DTS and DTS Matrix 6.1 decoding.
- ◆ 7 surround programs
- ◆ High performance 192kHz/24-bit D/A converters perform accurate sound field reproduction for high quality multi-channel sources, as well as outstanding separation for two-channel stereo sources
- ◆ XM-Ready connector gives you access to over 150 digital channels of music, news, sports, talk and entertainment from America's number one Satellite Radio service. Requires the XM Connect and Play and an XM Satellite Radio subscription.
- ◆ Digitally Regulated Volume Control lets you make delicate adjustments within a narrow range, yet enables you to accurately move to very high or low levels quickly.
- ◆ Yamaha's five-channel stereo DSP puts music through all speakers in the system while maintaining stereo imaging — great for casual listening and parties.
- ◆ Yamaha's famed low impedance drive circuitry can handle virtually all loads and a wide variety of speakers and can be set for either 4- or 8-ohm speakers.
- ◆ Silent Cinema provides private listening enjoyment of multi-channel music or movie sound, including Dolby Digital and DTS Surround, through ordinary headphones.

#### Inputs & Outputs

- ◆ Three HDTV compatible component video in and one component video output
- ◆ Four composite video inputs and 2 outputs
- ◆ Two audio only analog inputs and one analog output.
- ◆ Two optical and one coaxial digital input accommodate digital sources such as DVD, CD, Cable/Sat, or a video game console.
- ◆ A subwoofer pre-out is provided for adding an outboard amp or a powered subwoofer.
- ◆ 5.1 channel direct inputs
- ◆ Heavy-duty binding post speaker terminals for front speaker and spring clip for others



## HTR-5930/5940/5950/5960/5990/6090

## HTR-5930 CONTINUED

**AM/FM Tuner**

- ◆ Up to 40 preset AM and FM stations can be grouped in five groups eight stations. These groupings make it easy for family members to easily access their favorite stations or to have musical genres, such as all the jazz stations, grouped together.

**Conveniences**

- ◆ A/B speaker switching allows you to switch between two sets of speakers at the touch of a button, or run two pair of main speakers simultaneously.
- ◆ The sleep timer permits a delayed receiver turn off. You can set it for up to two hours in 30 minute increments.
- ◆ Bass and treble EQ controls
- ◆ Analog mixdown for the center, surround and subwoofer
- ◆ The included remote control has built-in preset codes for most other manufacturers equipment, so you can use it as a single remote for the entire system.

**XM Satellite Radio Ready**

Using XM's revolutionary Connect-and-Play technology and any of Yamaha's home theater receivers, you can enjoy over 150 channels of near-CD quality music, sports, talk, comedy, drama, news, traffic, weather and more. All you need to access the crystal clear digital sound of XM is the Connect-and-Play antenna accessory. Hear satellite radio as never before - with a fully integrated system from Yamaha.

And now, using select Yamaha receivers you can access XMHD, powered by Neural Audio technology, with music that is broadcast 24/7 in 5.1 surround.

- ◆ Song title, album and artist info automatically show up on receiver's display
- ◆ Hear what you want, when you want.
- ◆ Over 150 Digital Channels
- ◆ 100% Commercial Free Music
- ◆ 24/7 Instant Traffic / Weather
- ◆ Near-CD Digital Quality

## HTR-5940 STEP-UP FEATURES



- ◆ 6.1 channel surround sound with 100 watts per channel (600 watts total)
- ◆ XM Satellite Radio ready with XMHD surround sound capability via Neural Audio
- ◆ Dolby Pro Logic IIx, DTS Neo:6, DTS-ES Discrete 6.1 and DTS 96/24
- ◆ Quad-Field CINEMA DSP and 7 surround programs
- ◆ Four A/V inputs including three with S-Video connectors
- ◆ Front panel A/V input with optical input
- ◆ Subwoofer Phase Selection provides phase switching for improved bass response.
- ◆ Digital ToP-ART (Total Purity Audio Reproduction Technology) is the name Yamaha has given to a design philosophy whose goal is to maximize signal purity.
- ◆ Mini analog input on the front panel for use with portable audio players
- ◆ Compressed audio enhancer improves the playback quality of computer based files such as MP3 and WMA.
- ◆ Easy to use colored button remote

## HTR-5950 STEP-UP FEATURES



- ◆ 6.1 channel surround sound with 105 watts per channel (630 watts total)
- ◆ Component video up-conversion, with full HDTV (720p/1080i) compatibility and time base correction, allows you to get a better cable connection between the receiver and your TV.
- ◆ Three optical digital inputs and one coaxial digital input and one optical digital output
- ◆ Audio lip-sync delay (0-160ms)
- ◆ Direct Stereo mode for the highest quality 2-channel sound reproduction
- ◆ The optional YDS-10 Universal iPod Dock allows you to listen to music, watch movies and view images from your iPod. You can even charge your iPod and control it via the receiver's remote unit with the On-Screen Display.
- ◆ Available in black and silver

## HTR-5830/5840/5850/5860/5890 AV Receivers

### HTR-5960 STEP-UP FEATURES



- ◆ 7.1 channel surround sound with 150 watts per channel (805 watts total)
- ◆ 7.1 Channel external decoder input
- ◆ Preamp outputs for all channels
- ◆ Nine channel speaker output
- ◆ Four optical and two coaxial digital inputs, and one optical output
- ◆ Five A/V inputs with S-Video connectors
- ◆ YPAO technology uses a small (included) microphone and sophisticated equalization system to optimize the sound of your home theater system, regardless of the position of your speakers
- ◆ Pure Direct mode bypasses all of the receiver's internal DSP circuitry to deliver the purist possible signal.
- ◆ Dialog lift for enhanced sound output

### HTR-5990 & HTR-6090 STEP-UP FEATURES



- ◆ 7.1 channel surround sound with 140 watts per channel (980 watts total)
- ◆ Two HDMI inputs and one output with 480p deinterlacing capability
- ◆ Six A/V inputs with S-Video; two optical digital outputs
- ◆ Surround back power-amp assignable for presence channels or zone 2 audio source
- ◆ Multi-room Zone2 capability and speaker B
- ◆ Direct-Access (macro-command, learning and preset capable) remote control unit with macro-command buttons
- ◆ Audio Delay for adjusting lip-sync (0-240 ms)
- ◆ A total of eight digital inputs (five optical and three coaxial) are available
- ◆ Phono input
- ◆ IR I/O ports and +12V trigger output

#### HTR-5990 Only

- ◆ THX Select2 processing
- ◆ Multi-room Zone3 capability
- ◆ 19 surround programs

#### HTR-6090 Only

- ◆ XMHD Surround compatible
- ◆ Pure Direct mode
- ◆ 23 surround programs

#### Silent Cinema

Silent Cinema technology enables you to enjoy the benefits of digital surround at any time of day without disturbing members of your household. SilentCinema is made possible by using Yamaha's custom designed LSI (Large Scale Integration) chip sets, which utilize a Cinema DSP algorithm for three-dimensional sound based on HRTF (Head Related Transfer Function). As an added convenience, when headphones are plugged in, the speaker outputs turn off automatically, and the receiver switches to the SILENT CINEMA mode.

#### YPAO —Yamaha Parametric Room Acoustic Optimizer

Yamaha's unique YPAO System analyzes the acoustics of your room and adjusts



various speaker parameters to provide optimum sound. Using the included optimizer microphone placed in the listening position, and the receiver's built-in parametric equalizer, the YPAO System takes into account 5 variables for tuning your system: proper speaker connections and phase; speaker distance from the listening position; speaker size and subwoofer crossover frequency, speaker frequency response, and Sound Pressure Level alignment. The system is automatic — simply activating the YPAO System causes test tones to be emitted from the speakers. These tones are picked up by the optimizer microphone and analyzed.

#### Cinema DSP Digital

Featured in Yamaha Digital Home Theater Components, this amazing technology makes the sound from movies (and music, too) much more thrilling and realistic than anything you've ever heard from a home system. You'll discover the full possibilities of home theater entertainment with Yamaha Cinema DSP components.

## HTR-Series Comparison Chart

	HTR-6090	HTR-5990	HTR-5960	HTR-5950	HTR-5940	HTR-5930
<b>Amplifier Section</b>						
Channels	7.1	7.1	7.1	6.1	6.1	5.1
RMS Power Output (8 Ohms, 1kHz)	140W x 7	140W x 7	115W x 7	105W x 6	100W x 6	110W x 5
Total Power	980W	980W	805W	630W	600W	550W
<b>Preamplifier Section</b>						
Dolby Digital EX	Yes	Yes	Yes	Yes	Yes	6.1 Compatible
DTS-ES Discrete 6.1	Yes	Yes	Yes	Yes	Yes	–
DTS 96/24	Yes	Yes	Yes	Yes	Yes	–
Dolby Pro Logic IIx	Yes	Yes	Yes	Yes	Yes	Dolby Pro Logic II
DTS Neo:6	Yes	Yes	Yes	Yes	Yes	–
Pure Direct	Yes	Yes	Yes	–	–	–
Surround Programs	23	19	14	14	14	7
THX Processing	–	Select2	–	–	–	–
Component Video Up-Conversion		Yes	Yes	Yes	–	–
HDMI Up-Conversion	Deinterlace 480p	Deinterlace 480p	–	–	–	–
Multi-Channel External Input	7.1	7.1	7.1	5.1	5.1	5.1
Compressed Music Enhancer	Yes	–	Yes	Yes	Yes	–
<b>Inputs and Outputs</b>						
Digital Input (Optical / Coaxial)	5/3	5/3	4/2	3/1	2/1	2/1
Digital Outputs (Optical / Coaxial)	2/–	2/–	1/–	1/–	–	–
Component Video Inputs / Outputs	3/1	3/1	3/1	3/1	3/1	3/1
Rear A/V Inputs	5 (All S-Video)	5 (All S-Video)	5 (All S-Video)	4 (3 S-Video)	4 (3 S-Video)	4
HDMI Inputs / Outputs	2/1	2/1	–	–	–	–
Composite /S-Video Outputs	3/3	3/3	3/3	2/2	2/2	2/–
Front Panel A/V Inputs	Yes (Optical/S-Video)	Yes (Optical/S-Video)	Yes (Optical/S-Video)	Yes	Yes	–
Audio Only Inputs / Outputs	3/2 plus Phono	3/2 plus Phono	2/1 plus Phono	2/1	2/1	2.1
Preamp Outputs	7.1	7.1	7.1	Subwoofer	Subwoofer	Subwoofer
Front Panel Input For Portable	–	–	–	–	–	Yes
Port For YDS-10 iPod Dock	Yes	–	Yes	Yes	–	–
<b>Other Features</b>						
XM Satellite Radio Ready	Surround	Yes	Surround	Surround	Surround	Yes
YPAO Automatic Optimization	Yes	Yes	Yes	–	–	–
On-Screen Display		Yes	Yes	–	–	–
RS-232C Interface	–	Yes	–	–	–	–
Zone 2 Output	Audio Only	Audio Only	–	–	–	–
Zone 3 Audio Output	–	Audio Only	–	–	–	–
+12V Trigger / IR Port	–/Yes	2/–	–/–	–/–	–/–	–/–
Dialogue Lift	Yes	Yes	Yes	–	–	–
Speaker A, B or A+B Selection		Yes	Yes	Yes	Yes	Speaker A or B
Selectable Subwoofer Crossover		Yes	Yes	Yes	Yes	–
Subwoofer Phase Select	Yes	Yes	Yes	Yes	Yes	–
<b>General</b>						
Remote Control	Learning	Learning	Preset	Preset	Preset	Preset
Dimensions (WxHxD)		17 $\frac{1}{8}$ " x 6 $\frac{3}{4}$ " x 17 $\frac{1}{16}$ "	17 $\frac{1}{8}$ " x 6 $\frac{3}{4}$ " x 16 $\frac{3}{16}$ "	17 $\frac{1}{8}$ " x 6 $\frac{3}{4}$ " x 16 $\frac{3}{16}$ "	17 $\frac{1}{8}$ " x 6 $\frac{3}{4}$ " x 16 $\frac{3}{16}$ "	17 $\frac{1}{8}$ " x 5 $\frac{1}{16}$ " x 12 $\frac{3}{16}$ "
Weight		34.2 lbs.	27.8 lbs.	24.2 lbs.	24.2 lbs.	19.8 lbs.